ISSN 2313-4941

Volume 10 Number 2 July 2022

The Journal of Ad-din Women's Medical College

The Journal of Ad-din Women's Medical College

Volume 10, Number 2, July 2022

CONTENTS

An official organ of Ad-din Women's Medical College

The Journal of Ad-din Women's Medical College

Volume 10, Number 2, July 2022

Published by : **Prof. Dr. Ashraf-Uz-Zaman**
Principal, Ad-din Women's Medical College
2 Bara Moghbazar, Dhaka-1217, Phone : +880-2-49362921, 49362926
Fax: 8317307, E-mail: awmc@ad-din.org, Website: www.ad-din.org

Printed by : **Asian Colour Printing**
130, DIT Extension Road, Fakirerpool, Dhaka, Bangladesh
Phone : 58313186, 8362258, E-mail : asianclr@gmail.com

ISN : 2313-4941

Instruction for the Authors

The Journal of Ad-din Women's Medical College (ISSN 2313-4941) is an official organ of the Ad-din Women's Medical College, Dhaka and published twice in January and July every year. This journal is recognized by the Bangladesh Medical and Dental Council (BMDC). We publish original articles, review articles, case reports and others (see page vi) including society news.

The manuscripts submitted in this journal should not have been published in any other journal before. All submitted papers are subjected to be reviewed by the board of reviewers and editorial panel before accepting any manuscripts. The unaccepted articles will not be sent back, but will be destroyed. Proof corrections by the authors are well appreciated.

Submission of manuscripts

Papers are accepted for publication with an understanding that they are submitted solely to the journal of Ad-din Women's Medical College and are subject to peer review and editorial revision. Statement and opinion expressed in the papers, communications letter herein are those of author(s) and not necessarily of the editor and/or publisher.

Papers should be submitted with three hard copies and a soft copy (CD) labeled clearly with the manuscript title, name of first author with date, designation, mobile no. and email address to the Executive Editor with a copy to Editor-in-Chief of journal of Ad-din Women's Medical College, 2 Bara Moghbazar, Dhaka-1217, Bangladesh.

Form of full papers submitted for publication

The manuscript should be prepared using MS-Word. The whole manuscript should not exceed 4000 words. The manuscript should be divided into: (title page, abstract, body/text, references), but should be submitted as one document. All parts of the manuscript should be typed or printed on only one side of the paper in double space with wide margins of at least 2.54 cm in all sides of the manuscript throughout.

While the preferred font remains Times New Roman size 12 cpi. numbering of the pages should be done consecutively, beginning from the title at the lower right hand corner of each page. Each component of the manuscript should begin on a new page in the sequence of title page, abstract, text, reference, tables and legends for illustration.

Title page

The title page should include the title of the manuscript which should be concise within 45 characters. Name of authors with their highest academic degree(s), institutional affiliations and name of the departments should be mentioned. The complete mailing address and email IDs of the first and correspondence author(s) should be included to whom the proofs and all other correspondence should be sent.

Abstract

Each manuscript requires an unstructured abstract that should include objective, methods, results, conclusion and key words in not more than 150 words for any review article or case report an 250 words for structured abstract only for original article summarizing the significant information and findings. Authors must give two to five key words identifying the most important topics covered by the manuscript. Abbreviations, diagrams, and references in the abstract should be avoided.

Body/Text:

The body of the manuscript/text should be divided into the following sections: i) Introduction, ii) Materials and Methods, iii) Results (include tables and diagrams), iv) Discussion, v) Conclusion, and vi) Acknowledgement if any (particularly on funding, study subjects and co-author).

Introduction

It includes a short yet robust background purpose and the rationale for the study (or summarized observation), including pertinent references, but data or conclusion from any work should not to be included.

Material and methods

In this section, selection of the study subjects (patient or laboratory animals, including controls) should be described clearly. The age, sex and other characteristics

of study subjects should be identified. The total methodology in details, apparatus to be used, and procedure to be followed must be given in sufficient details to allow other researcher to reproduce it, as and if required for. References should be given to establish methods including statistical lines and precise identifications should be provided for all the drugs and chemicals to be used including generic names, dosage and route of administrations. Authors(s) submitting review manuscripts are advised to include a section describing the methods used for locating selecting, extracting and synthesizing data. If data is collected from other sources (published or unpublished) then proper permission(s) should be obtained and mentioned with acknowledgement.

Results

Results should be presented in a logical sequence in the text, tables, figures and/or illustrations. The use of too many tables or diagrams in relation to the length of text may produce difficulties in the layout of pages.

Tables and Figures

Tables should be embedded in the text and numbered consecutively in the order of their first citation in the text. The title of the table should be brief yet self-explanatory. Tables should not be submitted as photograph. All figures should be included as one separate sheet or file. The title should appear above each table (short and descriptive. Please mention a clear legend and any footnotes suitably identified below, clearly. Figures should be labeled properly, fitting to necessary size of the page. Captions of all figures should be typed, double-spaced and showed on a separate sheet. All original figures should be clearly marked in pencil on the reverse side with the number, author's name.

Footnotes

Place explanatory matter in footnote, not in the heading. For uniformity of style, authors should use symbols for footnotes such as 51.7 etc.

Illustrations

Illustrations submitted (line drawings, photos, photo-micrographs, etc.) should be clean, original, or as a digital files. Digital files are recommended to use since this produces highest quality following criteria, below:

- Minimum 300 dots per inch (DPI) or higher
- Appropriate sized to fit in journal page
- Preferably in JPEG and GIF formats
- Subject/ patient face must not be identified in diagram
- Should be submitted as separate files, not embedded in text files.

Discussion

This section should present a detailed yet comprehensive analysis of findings/results to describe, compared & criticized (positively or negatively) in the light of previous relevant studies, in the country or abroad. It should emphasize the new and important aspect of the study and the conclusions that follow from them. Repetition of detailed data &/or other materials given in introduction or result section may be avoided, unless deemed essential (in rare cases).

Conclusion

In the gist, study findings should be linked with the study goals. Recommendation may be included as appropriate including implication(s) of the findings and limitations if any.

Acknowledgements

Acknowledgement may be added, but if any should be placed at the end of the body/text and should be limited within 100 words. This section may particularly be used to acknowledge those persons who do not qualify for authorships but worked significantly for this study or write up manuscripts.

Acknowledgement for funding, donated resources, or significant contributions of research materials be made as well, if author(s) wish.

References

All references should be cited in the text following Vancouver system/style in Arabic numbers, to number the texts, consecutively, following an order in which if appears first in the text using superscript (or cite within the text numbers in round brackets). If a reference is cited more than once the same number should be used each time. References cited only in tables or figure legends should be numbered in accordance with the sequence from the last number used in the text and follows the order of individual tables/figures. At the end of the paper, on a page(s) separate from the text, a references list must be added following exact Ref. No. in numerical order. References to materials available on websites should include the full internet address and the date of the version cited as: Authors' names (in normal order), document title, and date of Internet publication

or other retrieval information (date of access), text division (if applicable). Examples of references are given below.

(i) Reference from the Journals

1. Parkin DM, Clayton D, Blook RJ, Massyer E, Fried HP, Iranov E et al. Childhood leukaemia in Europe after Chernobyl: 5 years follow up. Br J Cance 1996; 73: 1006-1012
2. Paganini HA, Chao A, Ross RK, Henderson Aspirin use and chronic diseases: a cohort st of the elderly. BMJ 1989; 299: 1247-1250

Note: The name of the journal & its volume should be in Italic.

(ii) Books

1. Gyton AC, Hall JE The thyroid metabolic hormones In Textbook of Medical Physiology. 10th edn. NewTork: WB Saunders Company. 2000: 858-86

(iii) Internet

I. Harverd medical school Available https:// en.wikipedia. org/wiki/havard medical college, accessed October 2011

(iv) Thesis/Dissertations

1. Khan MAH. Lipid profile and renal function status of hypothyroid patients [MD Thesis). Dhaka Bangabandhu Skeikh Mujib Medical University:2005

(v) Scientific or technical report

1. Akutsu T. Total heart replacement device. Bethesda MD: National Institutes of Health, National Heart and Lung Institute, 1974 Apr report No. N1H-NHLI-69 2185-4 Ethical approval

The authors should mention the name of the ethical approval authority or (IRB: Institutional Review Board) for their study either separately or in materials and methods section, particularly if the study has been done on human subjects, laboratory samples or laboratory animals. However, not all surveys may not require an ethical permission, parse, in general. But it can be obtained & attached with the proposal, if the authors(s) wish.

Authorship Statement

A form must be signed by all listed authors indicating the contribution to the paper made by each. The corresponding author is responsible for obtaining signatures from all listed authors and using. A check off form, should indicate by name what each author contributed to each of the various aspects of the study: However, (e-signature are accepted except 1st & corresponding authors).

- study concept
- study design
- data collection & processing
- statistical analysis
- manuscript writing

Editorial action

Once the Board of Editors receives the manuscripts it would be examined & reviewed thoroughly for its content, quality, writing skills & if the manuscript contains any newer/novel issues, important to get it published. Rejected manuscripts will not be returned. Proofs correction by the authors will be

appreciated. Once it requires for gross errors or incompleteness. No reprint will be provided. The editors reserve the customary right to check the style and if necessary. May shorten some/few parts of the manuscripts before it can be accepted for publication and thus, to determine the priority, and time, for its publication. The editor assumes that the writings are based on honest observations. It is not the task of the editor to investigate scientific frauding paper or to check false/fake data. However, plagiarism will be checked by the reviewers; but the authors are suggested to check the plagiarism on their own, which will be prioritized for reviewing, editing & publishing the manuscripts.

Copyright

Accepted papers will be the permanent property of the Journal of Ad-din Women's Medical College. By submitting the manuscript, the authors agree that once the article is accepted for publication, copyright of their article is automatically transferred to the Ad-din Women's Medical College, Dhaka.

Further instruction for preparing paper and submission

Please read the following submission checklist that summarizes the main features for manuscripts to be submitted at the Ad-din Women's Medical Journal. Please ensure your manuscript follows the recommended number of pages, references etc. for specific articles to be accepted by the Ad-din Women's Medical Journal as shown below.

1. Type of article: **Original Article**
   No of references: 35
   Abstract: Yes, 250 words
   Max no. of printed pages: 5 (=14 msw pages*) approx. 4500 words
   Headings: Yes
   Keywords: Yes

2. Type of article: **Mini commentary focusing articles published in the journal**
   No of references: max 5
   Abstract: No
   Key notes: No
   Max no. of printed pages: 1 printed page, or Max 800 words
   Headings: No
   Keywords: No

3. Type of article: **Brief report**
   No of references: max 5
   Abstract: No
   Key notes: No
   Max no. of printed pages: 1 printed page, or max, 1000 words
   Headings: No
   Keywords: No

4. Type of article: **Editorial**
   No of references: max 10
   Abstract: No
   Key notes: No
   Max no. of printed pages: 3 pages, or max, 2000 words
   Headings: No
   Keywords: No

5. Type of article: **Clinical overview**
   No of references: 30
   Abstract: Yes, max 200 words
   Key notes: No
   Max no. of printed pages: 3 (=9 ms pages*) approx.3000 words
   Headings: No
   Keywords: Yes

6. Type of article: **Review article**
   No of references: max 60
   Abstract: Yes, max 150 words
   Key notes: No
   Max no. of printed pages: 8(= 24 ms pages*) approx. 6650 words
   Headings: Yes
   Keywords: Yes

7. Type of article: **Mini review**
   No of references: 30
   Abstract: Yes, 200
   Key notes: Yes
   Max no. of printed pages: 4(= 12 ms pages*)approx. 3500 words
   Headings: Yes
   Keywords: Yes

8. Type of article: **Case report**
   No of references: max 15
   Abstract: Yes, 200
   Key notes: Yes
   Max no. of printed pages: 4 (=12 ms pages*) approx. 3500 words
   Headings: Yes
   Keywords: Yes

9. Type of article: **Society news**
   No of references: 20
   Abstract: No
   Key notes: Yes
   Max no. of printed pages: 1 printed page, or max, 1000 words
   Headings: No
   Keywords: No

10. Type of article: **Commentary**
    No of references: max 9
    Abstract: No
    Key notes: No
    Max no. of printed pages: 1/2 printed page, or max, 500 words
    Headings: No
    Keywords: No

11. Type of article: **Perspective**
    No of references: 5
    Abstract: No
    Key notes: No
    Max no. of printed pages: 2 printed page, or max, 1000 words
    Headings: Yes
    Keywords: No

12. Type of article: **Reader's forum**
    No of references: 3
    Abstract: No
    Key notes: No
    Max no. of printed pages: 1/2 printed page, or max, 500 words
    Headings: No
    Keywords: No

13. Type of article: **Essay**
    No of references: 5
    Abstract: No
    Key notes: No
    Max no. of printed pages: 2 printed page, or max, 1000 words
    Headings: Yes
    Keywords: No

14. Type of article: **Different view**
    No of references: 10
    Abstract: No
    Key notes: No
    Max no. of printed pages: 2 printed page, or max, 1500 words
    Headings: Yes
    Keywords: No

Editorial

Participation of AWMCH's Physicians in Research Activities: Glimpse from Medical College Research Unit (MRU), Ad-din Women's Medical College

*Mahmuda Hassan[1], ARM Luthful Kabir[2], Sanjoy Saha[3], M.A. Mazhar[4], Kazi Selim Anwar [5]

1. First things first:

Since its inception on 26 May, 2021, the Ad-din Research Unit (ARU), later changed to Medical Research Unit (MRU) by our respected Executive Director Dr. Sheikh Mohiuddin, being so correct yet largely logical. Our MRU started moving gradually yet targeting multifaceted research and development (R&D) activities. It is encouraging enough to notice that the MRU has been quite successful in communicating rightly and motivating successfully. Our entire doctor community of AWMCH is creating a good rapport on research and development activities.

However, our AWMC must possess a prudent policy to support every academic staff in medical research to boost inner zeal, increase far sightedness and in-depth interest in medical writing and manuscript preparations for probable publications. Unless this is achieved, the quality of acquired knowledge in research among our academic and technical doctors departments will not be at par. So, it remains essential to be disseminated to all our teachers and researchers at the clinical and public health departments. It would only then reach (benefit) on prospective students who remains our future academicians and clinicians.

1. *Vice-Principal & Professor, Department of Pediatrics, Ad-din Women's Medical College and Hospital, Dhaka-1217
2. Professor & Head of Department of Pediatrics, Ad-din Women's Medical College and Hospital, Dhaka-1217
3. Assoc. Professor, Department of Pharmacology, Ad-din Women's Medical College and Hospital, Dhaka-1217
4. Professor, Department of Forensic Medicine, Ad-din Women's Medical College and Hospital, Dhaka-1217
5. Head, Medical Research Unit (MRU), Ad-din Women's Medical College and Hospital, Dhaka-1217

Correspondence: Prof. Mahmuda Hassan, Vice-Principal & Professor, Department of Pediatrics, Ad-din Women's Medical College and Hospital, Dhaka-1217

Received Date : 12 September, 2022
Accepted Date : 06 November, 2022

In this regard, with the prior consent of the Director General (Ad-din foundation) and the Principal of AWMC, we should take strong attempts in capitalizing this opportunity of motivating, attracting and thus compelling all the teachers and the academicians towards:

- Arranging some sort of incentive to boost our teachers' interest in research and development.
- Making provisions of some sort of rewards/ recognition/certificates in this regard, so as to encourage these cohorts of academic and scientific community (that may well include the senior students, intern doctors and lecturers).

Failure to do so, the qualitative and quantitative values of manuscripts to be written by our teachers and academicians to be published in our AWMC journals will fail to reach its quality and height in terms of acceptability and adaptability both among in house as well as other national journals, unless our AWMC journal obtains its Digital Object Index (DOI) from global indexing authority. However, DOI requires a standardized journal committee and quality manuscripts to get published in continuously, for at least 3 years.

2. MRU's Hard Core Efforts:

Principal efforts of MRU were exerted to motivate our physicians towards conducting a wide range of research and development (R&D) activities but, most effort was pointed towards increasing the interest of publications in AWMC Journal, which we lagged a bit, but now regularized at par, recently.

Now, all these aforementioned points must be evaluated and encouraged to be implemented by the concerned authority of AWMC.

It was amazing to notice that since 2019 we published the following articles by respective professors or academicians:

Publication in AWMCJ (listed out by Medical College departments submitted more for publications):

From The Department of Medicine:

So far, total 15 articles have been published in our AWMCJ since September 2021 onwards-

Published in July 2019-

1. Aditi Chowdhury, Pranab Kumar Chowdhury, Mohammed Maruf Ul Quader, Nevis Wadia, Sayeema Kabir, Mahmuda Akhtar; Association of Waist Circumference and Blood pressure among Primary School Children in selected School of Chattagram, Bangladesh; Vol.7, N-2, July 2019.

2. ANM Saiful Hasan, Md. Anwar Hossain Khan, ABM Mahbub Ul Alam, Kabir Alom, Mahmuda Hassan, Shahnaz Akhtar, Md. Abu Sayed Miah, Md. Asaduzzaman Patowary, Rokeya Begum, Tasneema Juaira; Prevalence of Urinary Tract Infection (UTIs) among school going children in Dhaka, Bangladesh: A Dipstick Test Study; Vol.7, N-2, July 2019.

3. Md. Mazharul Islam, Karim Rezwan Hasan, Rubaba Tajreen; A case of death due to self-suspension; Vol.7, N-2, July 2019

Published in January 2020-

4. Prof ARM Luthful Kabir, M Afiquor Rahman; Pediatric Urolithiasis: Pros and cons of a paradigm shift in childhood kidney disease, Vol-8, N-1, Jan 2020.

5. Nahid Yasmin, Mahmuda Hassan, Masuma Khan, M Alamgir Mandal, Sayma Sultana, Husne Ara Khatun, Nila Akter Keya, Dipa Saha; Association between socio-demographic factors and nutritional status among women of reproductive age living in a Dhaka peri-urban community; Vol-8, N-1, Jan 2020.

6. Meherun N Neela, Musanna Al Faruki, Fatima-Tuz-Zohra, Abdullah Al Mamun, Rehnuma Alam Purna, Suraiya Hasna, Joheb Al-Hasnain, Sohana Zaman, Saiful B Khan; Pregnancy induced Acute Kidney Injury (AKI) and its consequences: An Updated review!, Vol-8, N-1, Jan 2020.

7. Narayan Krishna Bhowmik, Sardar Samiul Islam; Preventing vertical transmission of Hepatitis B Virus (HBV) can yield HBV free future generation, and it requires effective marital law support!, Vol- 8, N-1, Jan 2020

Published in July 2020-

8. Banita Mistry, Shamim Ara Begum, Dipa Saha, Shahjahan Chowdhury, Farzana Binte Rashid, Md Allauddin; Limited screening of Typhoid Function for preterm and clinically hypothyroidism suspected term neonates, Vol. 8, N-2, July 2020.

9. Sudipta Roy, Prof ARM Luthful Kabir, Rahat Bin Habib, Masuma Khan, Armin Sultana, Ashraf Uddin Ahmed; Co-Occurrence of Rickets and Scurvy - A case report, Vol. 8, N-2, July 2020

Published in January, 2021-

10. Assoc. Prof. Dr. Salim Mahmod; Primary PCI is the best treatment after MI, Vol. 9, N-1, Jan 2021

11. Dr. Md. Firoj Hossain; Relationship between serum amylase & lipase with body mass index in under 30 diabetic patients. Vol. 9, N-1, Jan 2021

12. Dr. Nahida Anwar Poly; Prevalence of ABO and Rh Blood groups and their combinations among the blood donors attending the Transfusion Medicine Department of TMC and RCH, Bogura, Vol. 9, N-1, Jan 2021

Published in July, 2021-

13. Prof. ARM Luthful Kabir, Prof. Mahmuda Hassan, Dr. Sanjoy Saha, Prof. Dr. M.A. Mazhar, Dr. Kazi Selim Anwar, Participation of AWMCH's physicians: Glimpse from Ad-din Research Unit; Vol. 9, N-2, July 2021

14. Dr. Shawana Haque; Status of serum magnesium & copper level in Bangladesh children and adolescent with type 1 diabetes mellitus and their relationship with glycemic control, Vol. 9, N-2, July 2021

15. Prof. Ashraf Uddin Ahmed, Prof. ARML Kabir, Dilruba Akter, Dr. Masuma Khan; Glimpse from Nutrition Rehabilitation Unit (NRU), Department of Pediatrics, Ad-Din Women's Medical College & Hospital: Trend and Rehabilitation for Childhood Protein Energy Malnutrition, Vol. 9, N-2, July 2021

From The Department of Obstetrics and Gynecology:

So far, total 10 articles have been published in our AWMCJ since September 2021 onwards-

Published in July, 2019-

1. Kazi Morjina Begum, Md. Abu Sufian, Nahid Ysmin, Nasrin Sultana, Mahmuda Hassan, Mst. Nilufar Jahan, Shahnaz Akhtar; Caesarean delivery on maternal request (CDMR): a reason for escalating rates of caesarean section, Vol.7, N-2, July 2019

2. Kazi Morjina Begum, Mahmuda Hassan, Md. Abu Sufian, Husne Ara Khatun, Fatema Binte Islam,Rahima Khatun, Nasrin Sultana; Immediate

Outcome of Neonates with high maternal BMI,, Vol.7, N-2, July 2019

3. Kazi Morjina Begum, Md. Abu Sufian, Mahmuda Hassan; Hyperreactio Luteinalis during Caesarean section in a woman with twin pregnancy: A case report, Vol.7, N-2, July 2019.

Published in January, 2020-

4. Laila Noor, Khadija Dilshad, Sadah Hasan, Sadia Afrin Suchona, Meherun Nessa Neela, Merina Tanzil; Routine post-operative hemoglobin estimation in low risk caesarian section: recent observation from a pro-poor, pro-women urban hospital, Dhaka, Vol. 8, N-1, Jan 2020.

Published in July, 2020-

5. Md. Abu Sufian, Kazi Morjina Begum, Mahmuda Hassan, Shahnaz Akhtar, Tania Noor; Early maternal and neonatal outcome of diabetic mothers in tertiary care hospitals; Vol. 8, N-2, July 2020

6. Kazi Morjina Begum, Md. Abu Sufian, Mahmuda Hassan, Banika Biswas, Rahima Khatun, and Mst. Nilufar Jahan; Perinatal outcome of vaginal birth after earlier caesarian section: Findings from tertiary care teaching hospital; Vol. 8, N-2, July 2020

Published in January, 2021-

7. Dr. Dil Afroz; A study on outcome of unsafe abortion by medical methods in rural community, Vol. 9, N-1, Jan 2021

Published in July, 2021-

8. Dr. Dil Afroz; Statistical evolution of indications of cesarean section in Jahurul Islam College & hospital; Vol. 9, N-2, July 2021

9. Kazi Morjina Begum; Factors associated with pregnancy induced hypertension with maternal and fetal outcome in a tertiary care hospital, Dhaka. Vol. 9, N-2, July 2021

10. Laila Noor; Appropriateness of Routine Cross Matching and Blood Transfusion Practice in Caesarean Section for Low Risk Postpartum Haemorrhage Pregnancies at Ad-din Women's Medical College Hospital, Moghbazar , Dhaka. Vol. 9, N-2, July 2021

From Department of Surgery:

So far, total 09 articles have been published in our AWMCJ since September 2021 onwards-

Published in January, 2020-

1. Md. Hanif Emon, Sardar Samiul Islam, Fatema Tuz Zohra, Shah Alom Sarkar, Debabrata Paul, Sardar Rezaul Islam; Outcome of lateral pancreato-jejunostomy in chronic pancreatitis – Our experience in two tertiary care hospitals. Vol. 8, N-1, Jan 2020

2. Md. Abdul Matin, Khandaker Nazmul Huda, Mahbubur Rahman Shaheen; Complication of Nd: YAG Laser Capsulotomy. Vol. 8, N-1, Jan 2020

Published in July, 2020-

3. M Afiquor Rahman, Md. Hasanuzzaman, Merina Tanzil, Suraiya Hasna Suha; Urolithiasis and Nephrolithiasis: The two wings of analogue urinary tract injuries. Vol. 8, N-2, July 2020

4. Shah Alom Sarkar, Md. Hanif Emon, Sardar Samiul Islam, Sardar Rezaul Islam, Maruf Raza, Debabrata Paul; Testicular Tumor. Vol. 8, N-2, July 2020

5. Shahidul Islam, Merina Tanzil, Najiba Kabir, Chowdhury Md. Saleh Al-Nayem, Sabikun Nahar Tonima; Spine surgery – Scopes, expectation and drives in Bangladesh: On how to alleviate patient's sufferings. Vol. 8, N-2, July 2020

6. Md. Abdul Matin, Mahbubur Rahman Shaheen, Tasnia Nawreen; DCR Operation in rural area of Bangladesh: A study of 346 cases. Vol. 8, N-2, July 2020

Published in January, 2021-

7. Dr. Sadia Armin Khan; Nipple discharge evidence based observation from dept. of surgery, Ad-din Hospital. Vol. 9, N-1, Jan 2021.

Published in July, 2021-

8. Sardar Rezaul Islam; Laparoscopic Vs Open Appendectomy- A Retrospective Cohort Study. Vol. 9, N-2, July 2021

9. Dr. A K M Maruf Raza; Various staging and grading system of colorectal cancer: A review article. Vol. 9, N-2, July 2021

From the Department of Public Health Nutrition:

So far, total 03 articles have been published in our AWMCJ since September 2021 onwards-

Published in January, 2021-

1. Trisita Saha Biswas; Nutritional knowledge and dietary habit of medical students: a systematic review. Vol. 9, N-1, Jan 2021

2. Nila Akter Keya; Early initiation of breast feeding (EIBF). Vol. 9, N-1, Jan 2021

Published in July, 2021-

3. Dr Farhana Haque; Evolution and Metamorphosis in my Career: from a Junior Public Health Physician to an UN Employee – What's all about? Vol. 9, N-2, July 2021

From Department of Opthalmology:

So far, total 02 articles have been published in our AWMCJ since September 2021 onwards-

Published in January, 2020-

1. Md Abdul Matin, Khandaker Namul Huda, Mahbubur Rahman Shaheen; Complications of Nd: Yag Laser Capsulotomy; Vol. 8, N-1, January 2020

Published in July, 2020-

2. Md Abdul Matin, Mahbubur Rahman Shahin, Tasnia Nawreen; DCR Operation in Rural Area of Bangladesh: A study of 346 Cases. Vol. 8, N-2, July 2020

From Department of Skin and VD:

So far, total 03 articles have been published in our AWMCJ since September 2021 onwards-

Published in January, 2022

1. Dr. Kaniz Rahman Trend in Pediatric Dermatology & Recent finding from Dermatology OPD Ad-din Hospital. Vol. 10, N-1, January 2022
2. Dr. Kaniz Rahman; What are the main common causes of childhood scabies in dermatology OPD of AMCH, Vol. 10, N-1, January 2022
3. Dr. Kaniz Rahman, Farhana Rahman, Syed Afzalul Karim,; Scabies: Commonest cause of childhood skin infection in Bangladesh. Vol. 10, N-1, January 2022

From Department of Psychiatry:

So far, total 01 article have been published in our AWMCJ since September 2021 onwards-

Published in January, 2022-

1. Solaiman M A, Morshed ASM, Morshed NM, Mullick MSI4Psychological Distress and Perceived Burden among Parents of Children with Autism Spectrum Disorder: A Cross-Sectional Study. Vol. 10, N-1, January 2022

Special / Invited Article/ Commentary on Research and Development:

Published in July, 2019-

1. Kazi Selim Anwar, M Afiquor Rahman, Nahid Yasmin, ARM Luthful Kabir, Richmond Ronld Gomes, Mahmuda Hassan; Ad-din research unit (ARU): Biomedical research on the move! Vol.7, N-2, July 2019

Published in January, 2020-

2. Faugia Islam Anne; Importance of Qualitative Research: Experience from my career in public health. Vol. 8, N-1, Jan 2020

Published in July 2020-

3. Kazi Selim Anwar; Research capacity building: Newer strategy of boosting research, medical education and health care services delivery in medical college hospitals. Vol. 8, N-2, July 2020

Scientific Efforts From Intern Doctors of AWMCH:

Published in January, 2021-

1. Dr. Sadah Hasan- Can it open up a window to add value to clinical internship and act as an adjunct for job hunting subsequently? Vol. 9, N-1, Jan 2021

Published in July, 2021-

2. Kashfi Rizwana; Inception of ARU (Ad-din Research Unit) in Ad-din Women's Medical College and Hospital (AWMCH). Vol. 9, N-2, July 2021

FINAL POINTS:

MRU has been keenly watching the active roles of our doctors who assisted us in our research and scientific activities towards achieving missions and vision of MRU much more effectively.

Some of those are named as follows: (professors/ academicians who contributed in establishing the MRU and its sustainable approaches).

A) **Administrative assistance:**

1. Our Executive Director (ED) of Ad-din Foundation, Dr. Sheikh Mohiuddin assisted us in improving our ARU prudently to be much empowered and ensured with his valuable suggestions and exerted brilliant effort to make it sustained. Being so kind, yet largely logical, the Executive Director sir, transformed our earlier named research office from ARU (Ad-din Research Unit) to MRU (Medical Research Unit) of AWMC, this act of kindness which made all of us at the MRU, not only feel happy, but also being much encouraged.

2. Prof. Dr. Nahid Yasmin, Director General (Ad-din Foundation), rendered valuable assistance in developing and flourishing MRU, as well, along with Prof. Dr. M Afiquor Rahman, Head, Urology, Ex-Principal, Ad-din Women's Medical College & Hospital.
3. However, Prof. Dr. ARM Luthful Kabir, Head, Pediatrics, Ad-din Women's Medical College & Hospital, has exerted tremendous cooperation in founding, establishing links and making MRU familiar among all departments and doctors.
4. Moreover, Prof. Dr. Jamalunneesa, the Managing Director (MD), Ad-din Pharmaceuticals, also gave us the MRU some superb suggestions and pretty wise advise (to Head ARU) on how it should run more prudently and sustainably enough. She also emphasized to get some publications in international journal as early as possible, which the Head, MRU is being trying, too. And, MRU already has nine international publications, three manuscripts under pipeline and two manuscripts under preparation: (vide: attached at the end).

B) <u>Scientific assistance:</u>

While ARU remains largely indebted to Professor Dr. ARM Luthful Kabir, Head, Department of Pediatrics and the role of scientific empowerment to our MRU by Professor SM Rezaul Islam, Department of Surgery who, being one of the most senior academicians and great surgeons of AWMCH encouraged us in our scientific activities to denote more interests and enthusiasm by submitting.

Assoc. Professor Dr. Richmond Ronald Gomes who exerting all his talent and powerful thoughts towards setting and shaping up ARU to his utmost. He brought Dr. Meherun Nessa Neela, in at our ARU as the first Research Officer. Ms. Neela's contribution to ARU's over the first few months hardship and extremely responsible planning remains praise worthy. She started the clinical epidemiological studies of dengue titled 'Combating Severe Dengue in Children Utilizing WHO-2009 Classification: Insight from Ad-Din Hospital on Rapid Appraisal of Pocket Outbreak in Urban Dhaka' so brilliantly and with due responsibility.

Then, Dr. Suraiya Suha also joined the MRU in place of Dr. Meherunnesa Neela who also gave some effort in ARU in some programs, issues, studies. Notably, both had been introduced by Dr. Richmond Ronald Gomes being very kind.

Moreover, Dr. Richmond's versatile yet prudent assistance to ARU and preparing project for attracting research funding and other grants from various institutions and Govt. sources (MOHFW, MOSC etc.) in Bangladesh, remain great.

Furthermore, contribution of Professor Dr. ARM Luthful Kabir in capitalizing ARU'S research fund to various donors remains unforgettable. The following table shows how seriously yet prudently Prof. Luthful Kabir could exert his maximum drives towards MRU Research funding:

The following 9 research project proposals were submitted at Ministry of Health (MoH) for MOHFW Research Grant (The marked projects have been funded in process of findings):

1. ***Further upgrading of research cell at AWMC: A Research Capacity Building (RCB) Drive.**
2. Mol. genetics & genomics of Cystic fibrosis- a life threatening childhood disease largely misdiagnosed: Multi Centre study: Phase1
3. Benign prostatic hyperplasia & lower urinary tract symptoms: Associations and Risk Factors among 50+ years-old men
4. Prevalence of *Nocardia* spp. causing non-healing-wound infections in randomly selected districts of Bangladesh
5. Preventing HBV vertical transmission & immune prophylaxis failure using antiviral drug in pregnant women- a cost effective lifesaving drive from AWMCH: First effort in Bangladesh.
6. ***Comparison of efficacy of Heated Humidified-High-flow nasal cannula (HHHFNC) with nasal Continuous Positive Airway Pressure (nCPAP): a primary respiratory support in neonates.**
7. Association of Ac. kidney injury in complicated pregnancy & its Outcome after 28 weeks pregnancy
8. ***The Mol. genetic approach to diagnose primary immune-deficiencies in children attending major hospitals in Dhaka city.**
9. Evaluation of Clinical rickets in respect to biochemical & radiological assay: A multi-center study in U-5 Children.

Projects that have already been funded (No. 1, 6 and 8) are on the way of funding soon.

B) **MRU Staff:**

The ARU (latest named as MRU) is run with the following staffs:

Permanent posting:

i. Dr. Kazi Selim Anwar (Head),
ii. Dr. Meherunnessa Neela (Research Officer-resigned after 3.5 month),
iii. Dr. Suraiya Suha (Research Officer-resigned after 5 month),
iv. Dr. Merina Tanzil (Research Officer-resigned after 6 month),
v. Ms. Nila Akter Keya - a Nutritionist joined as a Research Officer in March 2022.

Part time Volunteers: Ms. Jamima, Ms. Nowshin

Research Associates: Dr. Ony, Dr. Sadah, Dr. Umama from AWMCH and Dr. Meher afroz Momo (Dental Surgeon) from Kumodini Hospital.

- Few interns like Dr. Sadah, Dr. Kashfi Rizwana, Dr. Khadiza used to help us in creating database of clinical studies of dengue.
- Similarly, BSc. Nurse Ms. Suchana Yeasmin and Ms. Samia Momtarin also assisted us after completing their BSc nursing course helped us as well.

Publication of AWMCJ was stucked for more than one year due to COVID pandemic issues. After forming the ARU, in 2021, we have published Journal of Ad-din Women's Medical College - Volume 7, Number 2 July 2019, Volume 8, Number 1, January 2020, Volume 8, Number 2, July 2020; Volume 9, Number 1, January 2021; Volume 9, Number 2, July 2021 respectively. The MRU has updated its publication and from now we will published our journals regularly.

- **Publication List *(Only shown since 2021):***

1. **Kazi Selim A**, AMR L Kabir, Nahid Y, Masuma K, Mahmuda H, Sonjay S, Trisita SB, Faugia, I A, Nila A Keya. Prevention and Control of Childhood TB: Recent Findings on Parental Perceived-Knowledge, Attitudinal-Trend & Practice-Level from SW Bangladesh: Using a Mixed Method Study. ***Frontiers in Ped 2022*** (9th **Congress of European** Acad of Paed Soc, 7-11 Oct **2022,** Barcelona).
2. Saha D, Richmond RG, Saha CK, **Anwar KS** (**Mar 2022**). Evidence of pancytopenia, secondary to nutrition deprived vit. B12 efficiency in an epileptic child having cerebral palsy: A rare case report. ***J Blood Disord Transfus***.13(2):1000488
3. **Dr. Kazi Selim Anwar**, Prof. M Afiquor Rahman, Prof. Nahid Yasmin, Prof. ARM Luthful Kabir, Dr. Richmond R Gomes, Prof. Mahmuda Hassan. **(Feb 2022).** Ad-din Research Unit (ARU): Biomedical Research on the Move! Special/ Invited Article. ***AWMC Journal*** V-7, No. 2, pp.1-4.
4. Sheikh A Hoque, Azumi W, Hideaki S, Sayaka T, Shoko O, **Kazi Selim Anwar**….Hiroshi Ushijima. Detection of Rotavirus Strains in Freshwater Clams in Japan. ***Food & Environ Virol.*** **2022** Mar; 14(1); 84-100.
5. **Anwar KS**, AMZ Hussain, Kato Y, Naureen Tanzila, Huq KMA, et al., and Matsumoto, T. Knowledge-level, attitudinal trend and practice-status on COVID-19 prevention among randomly selected rural Bangladeshi communities. *(Manuscript under preparation:* **2022**)
6. **Kazi S Anwar**, Sayeeda, Anwar, Rafiqul AC, Salequl I, Kato Y, et al…and Matsumoto, T,. Mol. Epidemiol of Naso -pharyngeal MDR-bacteria in clinically diagnosed children with pneumonia/LRTI attending 6 tertiary care hospitals s in Dhaka. *(Manuscript under preparation:* **2022**)
7. ARM Luthful Kabir, Sudipta Roy, Rahat B Habib, **Kazi S Anwar**, MAH Mollah, Ruhul Amin, et al. Cystic Fibrosis diagnosed using indigenously wrapped sweating technique: First large-scale study reporting socio-demographic, clinical & laboratory features among children in Bangladesh a lower-mid income country. ***Global Pediatric Health***, 7:1-15; 30 Oct **2020** DOI: 10.1177/2333794X20967585.
8. Hazim K, Atef Oreiby, Amer Abd El-Hafeez, Takashi Okanda, Anwarul H, Kazi S Anwar..., **Matsumoto, T**. 'First report of multidrug-resistant Carbapenems-producing bacteria co-harbouring ***mcr-9*** **associated with pets' respiratory disease complex: A potential of animal-human transmission'** ***Antimicrobial Agents Chemotherapy***. **2020** Dec 16;65(1): e01890-20. doi:10.1128/AAC.01890-20.
9. Md Saiful Islam, T Sarkar, Sazzad HK, Abu-H Kamal, SMM Hasan, A Kabir, D Yeasmin, MA Islam, KIA Chowdhury, **Kazi S Anwar**, Abrar A Chughtai, Holly Seale. COVID-19–Related Infodemic and Its Impact on Public Health: A Global Social Media Analysis. ***Am J Trop Med Hyg***. 2020 Oct; 103(4): 1621–1629. Published online 2020 Aug 10. doi: 10.4269/ajtmh. 20-0812

Manuscript under Pipeline:

10. Sk. Ariful H, **Kazi Selim A**, M Azraf HK, UN Sultana, MAA, T Hossain, Laila S Sharmin, ARML Kabir, MAH Mollah, SA Hoque, Masuma K, Ngan Thi KP, Pattara K, Shoko O, Satoshi H & **Hiroshi Ushijima.** Emergence of Coxsackievirus A16 causing childhood Hand Foot & Mouth Disease: First Molecular Evidence from Bangladesh. ***J Pediac Infect Dis (Accepted for publication).***

11. Md. Azraf Hossain Khan, Ibrahim MS, MJ Alam, MM Rahman, P Chandra, F Yesmin, MA Reza, **Kazi Selim Anwar.** Rajshahi Med College Hosp., Rajshahi Univ., and MRU, AWMCH. Clinically and genetically diagnosed first childhood case of lipoid proteinosis (LP) in Bangladesh: Importance of P.R416X mutation in ECM1 gene in causing LP (Recently submitted for publication).

12. **Richmond R Gomes, Kazi Selim Anwar**, *et al*. Dept. of Medicine, and, Medical Research Unit, Ad-din Women's Medical College Hospital, Dhaka, Bangladesh **(Ready to submit for international publication, soon).**

Manuscript under preparation:

13. **Anwar KS,** AMZ Hussain, Kato Y, Naureen Tanzila, Huq KMA, et al., and **Matsumoto, T.** Knowledge-level, attitudinal trend & practice-status on COVID-19 prevention among randomly selected rural Bangladeshi communities. (**Manuscript under preparation: 2021**)

14. **Kazi S Anwar**, Sayeeda, Anwar, Salequl I, Rafiqul AC, Kato Y, et al.& **Matsumoto, T**. Molecular Epidemiol of Nasopharyngeal MDR-bacteria in clinically diagnosed children with pneumonia/LRTI attending 6 tertiary care hospitals in Dhaka. (**Manuscript under preparation: 2021**).

Original Article

Knowledge, Attitude and Practices towards COVID-19 Pandemic: An Epidemiological Survey in a Rural Community in Bangladesh

Mohammad Ali[1], Shameema Suraiya Begum[2], *Meherun Nesa Akhi[3], Bulbul Hossain Shuvo[4]

Abstract

COVID-19 is a major public health problem globally and also in Bangladesh. This cross-sectional descriptive study was conducted at Keraniganj Upazilla, Dhaka, with the objective of assessing the level of knowledge, attitude, and practice related to COVID-19 among adults of a rural and sub-urban community. Data were obtained through face-to-face interviews using a semi-structured questionnaire. The study has 618 participants. Regarding attitudes, 297 respondents (48.1%) believe that COVID-19 is a very dangerous disease, whereas 341 respondents (55.2%) believe that vaccines are of great aid. Masks are very helpful, according to 351 respondents (56.8%), isolation and social-distancing are also very helpful, according to 336 respondents (54.4%), and 553 respondents (89.5%) have a good attitude toward obtaining treatment. Only 25 (4%) of the respondents are found not to have received their COVID-19 vaccination in practice. This study shows that, it is advised that more focus be placed on awareness-raising programs to promote a positive attitude and appropriate COVID-19 practice.

Key words: COVID-19, Knowledge, Attitude, Practice.

Introduction

COVID-19 is primarily an air-borne infection respiratory disease caused by Novel Corona-virus that was first diagnosed in human body in late December 2019 in Wuhan, Hubei province, China. By the end of January, 2020 it was declared as a public health emergency of global concern and characterized as pandemic on March 11 by WHO.[1] Globally, as of October 10, 2021, Covid-19 has affected 227 nations and regions with almost 236 million confirmed cases. [2] Total confirmed cases in Bangladesh are more than 1.56 million.[3] The World Health Organization recommends wearing masks, limiting unnecessary activity, maintaining social distance, regular and adequate hand washing, and other non-clinical treatments to avoid this illness because there is no specific prevention for it (WHO).[4] The virus may be carried by aerosols or droplets that are breathed or come into direct contact with the eyes, nose, or mouth. Individuals in close proximity to one another, usually within one meter (short range).[5]

Public participation in government strategies is mandatorily expected to minimize the country's COVID-19 transmission rate.[6] This may well be due to our poor literacy rate, which may played an unfavorable role on respondent's knowledge, attitudes, and practices (KAP). This remain similar to a report by Bank-R.[7,8] Appropriate steps had been made by the Bangladeshi government to prevent the corona virus's spread,[8] which helped to minimize the disease transmission with the cost of severe economic distress as stated by a report Al-Zagera.[9]

In Bangladesh, a KAP study showed that a large proportion of people had limited knowledge of COVID-19 transmission and onset of symptoms and had positive perceptions of COVID-19. Another Bangladeshi study found that despite 54–87% of respondents having access to good knowledge, the attitude and practices were not impressive mainly because of poor knowledge,

1. Principal, Bashundhara Ad-Din Medical College, Keraniganj, Dhaka, Bangladesh.
2. Professor & HOD dept. of Community Medicine, BAMC, Dhaka, Bangladesh.
3. *Lecturer, Dept. of Community Medicine, BAMC, Dhaka, Bangladesh.
4. Assistant Professor, Dept. of Community Medicine, BAMC, Dhaka, Bangladesh.

Correspondence: Meherun Nesa Akhi, Lecturer, Bashundhara Ad-Din Medical College, Address: South Keranigonj, Dhaka-1310. Tel: 01913921840, E-mail: meherunakhi.dnmc@gmail.com

Received Date : 10 September, 2022
Accepted Date : 15 November, 2022

nonscientific, and orthodox religious belief. Furthermore, specifically among young people, there is no KAP study of COVID-19 available, although people between the ages of 21-40 account for about 50% of positive cases in Bangladesh which was hinted by the WHO. [10]

In Bangladesh COVID-19 vaccination was started from 27 January 2021 while mass vaccination started on 7 February 2021[3,11] to find out prevent further on how to reduce spreading transmitted outbreaks. This KAP study was designed on a specific community in terms of income, employment, religion, environment, and sanitation. We apprehend that utilizing this information, we can plan further to preventive as well as control program to limit the spread of COVID-19 in Bangladesh to alleviate the burden of sufferings in our community.

Methodology

Study type

The study was cross sectional and descriptive in nature.

Study period

The study was conducted from August 2022 to November 2022.

Study place

Keraniganj upazila, Dhaka, Bangladesh.

Study Population

All the adult people aged 18 years and above of the selected village.

Selection criteria:

A. Inclusion criteria:

- Adult people aged 18 years and above.

B. Exclusion criteria:

- Persons who refused to take part in the study.
- Persons who were too ill to take part in the study.

Sample size

Total 618 men and women were included in the study.

Sampling technique

Convenient sampling technique was followed to select the respondents. The upazilla was selected purposively.

Sampling unit

Every adult resident of the selected village**.**

Data collection instrument

A semi-structured questionnaire based on socio-economic characteristics and COVID-19 related KAP measuring questions were developed on Google form for data collection.

Pre-testing

Pre testing was conducted on 26 persons.

Data collection Technique

Data were collected by face to face interview ensuring privacy and confidentiality by using the questionnaire.

Data processing

After collection of data, were checked and analyzed; followed by editing, coding and categorizing to detect errors or omissions and to maintain consistency and validity. Then these were entered into MS Excel® and SPSS® version 21 software for windows® in personal computers for analysis.

Data analysis

Analysis was performed using the 21st version of SPSS® software. For descriptive statistics means, standard deviations & ranges for numerical data and frequencies & proportions for categorical data were calculated.

Results

Socio-demographic characteristics

Majority of the study participants were male (331, 53.6%).Among 618 participants mean age was 36.7 (±11.9) years ranging from 18 to 80 years. The majority of respondents (596, 96.4%) were Muslims, with 3.6% being Hindus. Less than five years of schooling were held by 170 respondents (27.5%), six to ten years by 250 respondents (40.5%), and eleven years or more by 198 respondents (32.0%).Based on the study, 362 respondents (58.6%) worked in low-level jobs, 230 respondents (37.2%), mid-level jobs, and about 26 respondents (4.2%), high level jobs. In the study, there were 490 married respondents (79.3%), 118 single respondents (19.1%), and 10 divorced, widowed, or widowers respondents (1.6%).

The majority of respondents, 319 (51.6%), were from nuclear families, defined as those with 1 to 4 members; 235 (38%) came from medium-sized families, defined as those with 5 to 6 members; and 64 (10.4%) came from extended families, defined as those with 7 or more members. Only 114 respondents (18.4%) of the study's 504 participants live in joint or three-generational families, making up the bulk of nuclear families (81.6%). The respondents' average monthly family income was Tk. 26911.8, with a standard deviation of Tk. ± 18207.0.The average monthly family income for the 306 respondents (49.5%) was between Tk. 10,000 and Tk.

25,000, with 127 respondents (20.6%) making more over Tk. 35,000. It is found that the bulk of respondents (431 or 69.7%) live in paka houses, followed by 168 (27.2%) and 19 (3.1%) semipaka houses. The bulk of respondents, 433 (70.1%), obtain their drinking water from tube wells or subterranean sources, while 181 (29.3%) obtain it via pipeline services. The majority of respondents 611 (98.9%) use sanitary latrines, while only 7 (1.1%) use open or unsanitary facilities.

Table 1: Sociodemographic characteristics of the respondents

Attributes	Frequency	Percentage
Age		
18-25	105	17.0
26-35	231	37.4
36-45	156	25.2
46-55	83	13.4
55+	43	07.0
Sex		
Male	331	53.6
Female	287	46.4
Religion		
Muslim	596	96.4
Hindu	22	3.6
Educational qualification (years of schooling)		
0-5 years	170	27.5
6-10 years	250	40.5
11 or more	198	32.0
Marital status		
Single	490	79.3
Married	118	19.1
Divorced/Widow/Widower	10	1.6
Occupation		
Low level jobs	362	58.6
Mid-level jobs	230	37.2
High level jobs	26	4.2
Monthly family income		
0—10,000	72	11.7
10,001—25,000	306	49.5
25,001—35,000	113	18.3
> 35,000	127	20.6

History of suffering from COVID-19

In this study it is revealed that, majority 447 (72.3%) of the respondents did not suffer from COVID-19, only 95 (15.4%) of them suffered from symptoms like COVID-19 but not confirmed and 76 (12.3%) of them suffered and confirmed. In this study, it was discovered that 447 (72.3%) of the respondents did not have COVID-19; only 95 (15.4%) of them had symptoms that were similar to COVID-19 but were not proven, and 76 (12.3%) of them had symptoms that were confirmed. Only 98 (15.9%) of the respondents' family members had COVID-19, the majority of 424 (68.6%) of the respondents' family members did not have it, and 96 (15.5%) of them had and had it confirmed. In this study, it was discovered that 76 (12.3%) of the respondents had COVID-19, which was verified by lab testing, while 542 (87.7%) of the respondents did not.

Knowledge regarding COVID-19

In this study, it was discovered that 423 respondents (68.4%) had accurate knowledge of the causal agent, COVID-19, while 195 respondents (31.6%) did not. Regarding COVID-19's mechanism of transmission 139 respondents (22.5%) do not know the mode of transmission, while 479 respondents (77.5%) do. A total of 466 responses (75.4%) and 152 (24.6%) correctly identified the source. 90 respondents (14.6%) do not know about the symptoms of COVID-19, while 528 respondents (85.4%) correctly identify them. Out of 564 respondents only 54 respondents (8.7%) do not know how to prevent COVID-19.

Attitude regarding COVID-19

The results of this study show that 297 respondents (48.1%) think COVID-19 is a very dangerous disease, 289 respondents (40.8%) think it's a moderately dangerous disease, and 32 respondents (5.2%) think it's not at all dangerous. Regarding the usefulness of vaccines, 341 (55.2%) respondents said it was very useful, 259 (41.9%) said moderately useful, and 18 (2.9%) useless against COVID-19. In terms of mask use, 351 (56.2%) respondents think they are extremely useful, 236 (37.2%) think they are moderately useful, and 31 (5%) think they are useless against COVID-19.Regarding isolation, 336 (54.4%) respondents think it is very helpful in combating COVID-19, 250 (40.5%) respondents think it is slightly helpful, and 32 (5.2%) respondents think it is completely useless. A majority of 553 (89.5%) respondents have the right attitude about seeking therapy, whereas 65 (10.5%) respondents do not. This is true for COVID-19 patients.

Table 2: Attributes of knowledge COVID-19 among the adult population of a rural community in Bangladesh

Attributes	Frequency	Percentage
History of suffering from COVID-19		
Confirmed case	76	12.3
COVID like symptoms	95	15.4
but not confirmed		
Not suffered from COVID-19	447	72.3
Confirmed case	76	12.3
Distribution of the respondents by prevalence of COVID-19		
Not suffered from COVID-19	542	87.7
Suffered from COVID-19 (confirmed)	76	12.3
Knowledge of causative agent of COVID-19		
Correct knowledge	479	77.5
Incorrect knowledge	139	22.5
Knowledge of mode of transmission of COVID-19		
Correct knowledge	479	77.5
Incorrect knowledge	139	22.5
Knowledge about the source of COVID-19 infection		
Correct knowledge	466	75.4
Incorrect knowledge	152	24.6
Knowledge about the symptoms of COVID-19		
Correct knowledge	528	85.4
Incorrect knowledge	90	14.6
Knowledge about the preventive measures of COVID-19		
Correct knowledge	564	91.3
Incorrect knowledge	54	8.7

Table 3: Attributes of knowledge, attitude, and practice of COVID-19 among the adult population of a rural community in Bangladesh

Attributes	Frequency	Percentage
Attitude about the seriousness of COVID-19		
Very dangerous	297	48.1
Moderately dangerous	289	46.8
Not dangerous	32	5.2
Attitude about usefulness of vaccines		
Very useful	341	55.2
Somewhat useful	259	41.9
Not useful	18	2.9
Attitude about usefulness of mask		
Very useful	351	56.8
Somewhat useful	236	38.2
Not useful	31	5
Very useful	351	56.8
Attitude about usefulness of distancing / isolation		
Very useful	336	54.4
Somewhat useful	250	40.5
Not useful	32	5.2
Attitude about treatment seeking		
Isolation, test, treatment	553	89.5
Nothing, wait and see	65	10.5

Preventive practice regarding COVID-19

The majority of respondents, 286 (46.3%), have had two doses of the COVID-19 vaccination, followed by 268 (43.4%) and three doses, while 39 (6.3%) have only received one dose, according to the study's findings. 181 respondents, or 29.3%, reported receiving a Sinopharm vaccine, while 117 respondents, or 18.9%, reported receiving a Pfizer vaccine. The majority of respondents (321 (51.9%) use face masks occasionally, 251 (40.6%) regularly, and 46 (7.4%) never use face masks, according to the study's findings. The majority of respondents (364 (58.9%) wash their hands frequently, 236 (38.2%) occasionally, and 18 (2.9%) never do so as a COVID-19 preventive measure. As a COVID-19 preventative measure, 53 (8.6%) respondents keep no social-distance at all, compared to the majority of 328 (53.1%) respondents who do so occasionally, 237 (38.1%) respondents who do so usually, and 328 (53.1%) respondents who do so.

Table 4: Attributes of practice of COVID-19 among the adult population of a rural community in Bangladesh

Attributes	Frequency	Percentage
Vaccination practice		
3 doses taken	268	43.4
2 doses taken	286	46.3
1 dose taken	39	6.3
No dose taken	25	4
Type of vaccine received by the respondents		
Not taken	25	4.0
Sinopharm	181	29.3
Moderna	111	18.0
Unknown brand	103	16.7
Pfizer	117	18.9
Astrazeneca	76	12.3
Covishield	5	0.8
Face mask using practice		
Regularly	251	40.6
Occasionally	321	51.9
Never	46	7.4
Hand washing practice		
Frequently	364	58.9
Occasionally	236	38.2
Never	18	2.9
Practice of maintaining physical distance		
Always	237	38.3
Sometimes	328	53.1
Never	53	8.6

Discussion

This cross sectional study was conducted among the rural and sub-urban adult population of Dhaka sub-urban. Our findings revealed that, majority (72%) of respondents did not get infected with COVID-19, while 15% suffered from several symptoms of COVID-19; but could not be confirmed, though 12% were confirmed. Notably, majority 69% of their family did not suffer from COVID-19, except 16% of them who developed symptoms like COVID-19, but again, could not be confirmed where only 15% were. Our study revealed that, majority (69%) of them had correct knowledge about the causative agent of COVID-19, while 32% had not.

According to our study, majority (78%) of our respondents had a correct knowledge of WHO's mode of COVID-19 transmission, while 23% persons does not match with WHO-recommendation. Again, 75% had the correct knowledge on the source of infection while 25% had not. Further, majority (85%) of them had the correct knowledge about the symptoms but 15% had not, and 48% opined that COVID-19 remains a very dangerous disease where 47% opined it as a moderately dangerous but 5% marked it as a dangerous disease.

Importantly, 93% of the respondents had a correct knowledge on the preventive measures of COVID-19 while 9% did not. Again, 55% respondents believed that vaccines had been very useful, while 42% found it not. However, 3% opined that vaccines against COVID-19 were not useful at all. Regarding the use of masks 57% found it very useful, 38% opined that mask was somewhat useful when, unbelievably, 5% said that mask was not useful at all against COVID-19.

Findings of this study revealed, 54% respondents believed that distancing/isolation was very useful, while 40.5% believed it was somewhat useful but 5% believed that it was not at all against COVID-19. Regarding vaccination while 4% were not vaccinated against COVID-19, 46% received 2 doses of vaccine against COVID-19 and 6% got it in 1-dose of vaccine only which does not follow WHO's recommendation.[3, 11] According to our respondents, 29% had taken covid vaccine from Sinopharm and 18% from Moderna. Of total respondents, where, 52% were reportedly used face mask occasionally, but 41% did it regularly while only 7% never use face mask at all.

Though not encouragingly enough, but 59% of the respondents used to wash hands regularly while 38% did it occasionally and 3% never washed hands at all as to prevent COVID-19-which does not remain of WHO recommendation. In this study, majority 328 (53.1%) of the respondents maintain physical distance occasionally, 237 (38.3%) respondents maintain distance always and 53 (8.6%) respondents do not maintain distance at all as a preventive measure of COVID-19, which is also reported by Rabbani et. al.[4]

Majority 553 (89.5%) of our respondents have the correct attitude about treatment seeking and 65 (10.5%) respondents do not have the correct attitude about

treatment seeking for the patients of COVID-19. Yusuf MA reported that according to public health, the overall knowledge score population of Jannamu-Kashmir-India (correct answer) was 90%. The positive attitude score was 73%.

Results showed that 93.0% of the population had positive practices based on asked questions, significantly associated with gender, age, qualification, marital status, area, and occupation.

The Spearmen correlation test) showed a significant correlation (P<.01) between scores of knowledge and attitude (rs = +0.28, P<0.01), knowledge and practices scores (rs=+0.24, P<0.01) and attitude and practice scores (rs=+0.24). However, due to the limited sample presentation, the study was unable to generalize to lower socioeconomic communities.[12]

[4]JMIR and Rabbani conducted a study showed that mean scores of knowledge, attitude, and practice various demographic and socioeconomic groups. Rural people had lower mean scores of knowledge and adhering to appropriate practice measures than urban people. Correlation between knowledge with attitude (r=0.21, P<.001) and practice (r =0.45, P <.001); attitude with practice (r=0.27, p<.02) was observed positively significant. Television (53.7%) was identified as the major source of knowledge regarding COVID-19. Almost three-fourths (72.97%) of the respondents went outside the home during the lockdown period. Furthermore, good knowledge (OR:3.13, 95% CI:2.03-4.83 and AOR: 2.33, 95% CI:1.16-4.68) and positive attitude (OR:2.43, 95% CI:1.59-3.72 and OR:3.87, 95% CI:1.95-7.68) are significantly associated with COVID-19 health measures' better practice. Community engagement and social and behavior change communication strategies should be developed in Bangladesh to reduce the spread of COVID-19, targeting different socioeconomic groups. [13]

Respondents had an average knowledge score of 17.29 (SD) and an average score for attitude scale of 13.6 (SD ¼ 3.7). Heliyon reported that respondents had excellent preventive behavioral practices towards COVID-19, reported by Hossain et al.[6]

This study found that knowledge and attitudes were not as important for preventive behavioral practices towards COVID-19, with education being the sole predictor. It suggests increasing education as a long-term strategy and taking action to increase knowledge and decrease negative attitudes towards the virus. [14]

The findings suggest that the Bangladeshi government should implement a program of health education focusing on knowledge and preventive behaviors towards COVID-19 at a community level. This is especially important for those who are male, divorced or widowed, consuming alcohol, smoking cigarettes, living in villages, and having no formal education, as they are more likely to engage in preventive behaviors. Education is essential for individuals to control and prevent the disease outbreak.[14]

Conclusion

The results indicated that the majority of the study participants in Keraniganj upazilla had demonstrated good knowledge, positive attitude and reasonable practice regarding COVID-19, however there are some negative attitudes and improper practice than expected to prevent and control the pandemic. Supplementary public education intervention and sensitization campaigns are needed for the study participants according to different factors (sex, marital status, occupation, educational levels and wealth status). Confidently, by enhancing good knowledge and positive attitude through public health decision-makers, and the support of the Bangladesh Government and the overall population, hopeful control and elimination of the COVID-19 can be expected.

References

1. Kundu S, Al Banna MH, Sayeed A, Begum MR, Brazendale K, Hasan MT, Habiba SJ, Abid MT, Khan MA, Chowdhury S, Kormoker T, Proshad R, Khan MSI. Knowledge, attitudes, and preventive practices toward the COVID-19 pandemic: an online survey among Bangladeshi residents. Z GesundhWiss. 2021 Aug 14:1-15. doi: 10.1007/s10389-021-01636-5 : 1, 6
2. World Health Organization. WHO Coronavirus (COVID-19) Dashboard received from https:// covid19. who.int/ : 2
3. World Health Organization. Bangladesh: WHO Coronavirus Disease (COVID-19) Dashboard with Vaccination Data.
4. Rabbani MG, Akter O, Hasan MZ, Samad N, Mahmood SS, Joarder T. Knowledge, Attitude, and Practice towards COVID-19 among People in Bangladesh: A Telephonic Cross-sectional Survey. JMIR Form Res. 2021 Apr 22. doi: 10.2196/28344 : 4
5. World Health Organization. Coronavirus disease (COVID-19): How is it transmitted? [Internet][cited 30

April 2021] Available from https://www.who.int/ emergencies/diseases/ novel- coronavirus -2019/ question -and- answers-hub /q-a-detail/ coronavirus-disease- covid-19-how-is-it- transmitted : 5

6. Hossain MB, Alam MZ, Islam MS, et al. Do knowledge and attitudes matter for preventive behavioral practices toward the COVID-19? A cross-sectional online survey among the adult population in Bangladesh. Heliyon. 2020;6(12):e05799.
7. Banik R, Rahman M, Sikder MT, Rahman QM, Pranta MUR. Knowledge, attitudes, and practices related to the COVID-19 pandemic among Bangladeshi youth: a web-based cross-sectional analysis. Z GesundhWiss. 2021 Jan 16:1-11. doi: 10.1007/ s10389-020-01432-7 : 9
8. Islam S, Emran GI, Rahman E, Banik R, Sikder T, Smith L, Hossain S. Knowledge, attitudes and practices associated with the COVID-19 among slum dwellers resided in Dhaka City: a Bangladeshi interview-based survey. J Public Health (Oxf). 2021 Apr 12;43(1): 13-25. doi: 10.1093/pubmed/ fdaa182:10
9. Aljazeera. Bangladesh starts COVID vaccination drive [Internet] [cited 28 Jan 2021]
10. World Health Organization. Tracking SARS-CoV-2 variants [Internet] [cited 12 October 2021
11. World Health Organization. The effects of virus variants on COVID-19 vaccines [Internet] [cited 1 March 2021]
12. Yousaf MA, Noreen M, Saleem T, Yousaf I. A Cross-Sectional Survey of Knowledge, Attitude, and Practices (KAP) Toward Pandemic COVID-19 among the General Population of Jammu and Kashmir, India. Soc Work Public Health. 2020 Sep 1;35(7): 569-578.
13. Samad N, Osman, Masud S. Knowledge, Attitude, and Practice towards COVID-19 among Bangladeshi People. JMIR Form Res. 2020
14. Hosen I, Pakpour AH, Sakib N, Hussain N, Al Mamun F, Mamun MA. Knowledge and preventive behaviors regarding COVID-19 in Bangladesh: A nationwide distribution. PLoS One. 2021 May 3;16(5):e0251151.

Original Article

Personal Habit and Carcinoma of Larynx, Hypopharynx among Bangladeshi lower socio-economic group of people: An Observational Study

*Md. Shaikhul Islam,[1] Md. Monwar Hossain[2], Sharfuddin Mahmud[3], Farjana Akther[4], Md. Jahirul Haque[5], Muhammad Ataur Rahman[6], Md. Mahbubur Rahman Shaheen[7], Rahat Bin Habib[8]

Abstract

Background: Personal habits like, tobacco consumption through smoking and oral intake is one of the most important risk factor of laryngeal and hypopharyngeal cancers among the low socioeconomic group of people. Developing countries like ours face arduous challenge to provide adequate treatment facilities from its poor resource settings to these patients. Constant evaluation of theses cancer patients in regard to their exposure to the hazardous personal habits can portray the current situation, thus can find out the scopes of implementation of necessary control measures and awareness build up actions.

Objective: The present study observed tobacco consumption and other personal habits in patients with laryngeal or hypopharyngeal cancers.
Methods: This is an descriptive type of cross sectional study, where 100 patients with laryngeal or hypopharyngeal cancers have been assessed, from two of the tertiary care hospital in Dhaka division, during the period of 2018 to 2021. Face to face interview was performed and medical records have been checked to collect data.

Result: In the present study, 65 patients were suffering from carcinoma of larynx and 35 patients were suffering from carcinoma of hypopharynx. Carcinoma in the supra-glottic region was evident in 53.0% cases, glottic and subglottic carcinoma were 11.0% and 1.0% respectively. Carcinoma in the pyriform fossa was 29.0% and post-cricoid carcinoma was 6.0%. With the age range of 35 to 75 years, laryngeal carcinoma was highest observed in the age group of 46 to 55 years (26 out of 65 cases) and hypopharyngeal carcinoma was highest observed in the age group of 35 to 45 years (11 out of 35 cases). In 83.0% cases, the respondents were illiterate and in 80.0% cases they were residents of rural area. More than half of the respondents were farmers (57.0%). The monthly income range of the respondents was 2000-12000 BDT and 50.0% of the respondents belonged from the lower quartile of this income range. Among the patients, 99 of them were tobacco consumers where, 93 of them were smokers and 38 of them were oral tobacco leaf consumers; 33 patients recorded to be consumers of tobacco leaf along with smoking.

Conclusion: With this high prevalence of smoking among the laryngeal and hypopharyngeal cancer patients, it can be estimated that, the lower socio economic group of people are at high risk of cancer in the oral region which can increase the overall cancer related morbidity and mortality in our country. Thus, findings from this study urges for strict control and monitoring measures on availability of tobacco products, as well as, necessitates awareness build up actions regarding the harmful health effects of tobacco among the lower socioeconomic group of people.

Keywords: Laryngeal cancer, Hypopharyngeal cancer, Personal habits, Tobacco, Smoking

1. *Assistant Professor, Department of Otolaryngology, Dhaka Medical College Hospital (DMC); Dhaka
2. Professor & Head of Department, Department of Otolaryngology, BIRDEM Medical College Hospital;
3. MS (3rd part Student), Department of Otolaryngology, Dhaka Medical College Hospital; Dhaka
4. Assistant Professor (Radiology & Imaging), National Institute of Mental Health & Hopital, Dhaka
5. Associate Professor (Medicine), Saheed Sayed Nazrul Islam Medical College, Kishoreganj
6. Assistant Professor (Medicine), Saheed Sayed Nazrul Islam Medical College, Kishoreganj
7. Asisstent Professor (Ophthelmology), President Abdul Hamid Medical College Hospital, Kishoreganj.
8. Assistant Professor (Pediatrics), Saheed Sayed Nazrul Islam Medical College, Kishoreganj, Bangladesh

Correspondence: Md. Shaikhul Islam, Assistant Professor, Department of Otolaryngology, Dhaka Medical College Hospital (DMC); Dhaka
Received Date : 10 September, 2022
Accepted Date : 20 October, 2022

Introduction

The carcinogenic effect of tobacco has been introduced no longer than 60 to 70 years, while for centuries, tobacco had been consumed through variable means.[1] Personal habits like tobacco consumption through smoking or taking tobacco leaves, chewing betel nuts, drinking alcohol are important risk factors of head and neck cancers inclusive of laryngeal and hypopharyngeal cancers.[2-7] Tobacco consumers remains at 10 times higher risk of developing cancer in the head and neck region comparing to the non-consumers.[8] Among the head and neck cancers, laryngeal cancer attributes to be the second most common head and neck cancer, the annual global incidence of which is 2.76/100,000 and the mortality rate is 1.66/100,000.[9] However, hypopharyngeal cancers are rear type of head and neck cancer, but

they are associated with worse prognosis compared to cancers from any other sites in the head and neck region.[10] It occurs with a yearly global incidence rate of 0.4% of all new cancers and 0.4% of all cancer-related mortality.[10] Overall, the annual global incidence of hypopharyngeal cancer is 0.8/100,000.[11] Tobacco consumption, mainly through smoking, is still an upward trend in low socioeconomic countries despite of the widespread knowledge of it's precarious health effects.[12] Bangladesh is one of the top ten countries in the world with high tobacco use, where 35.3% people aged above 15 years are currently actively consuming tobacco.[13,14] The 5 year prevalence of laryngeal carcinoma in Bangladesh is 6.96/100,000 and hypopharyngeal carcinoma is 5.79/100,000.[15] Carcinoma in the head and neck region are mostly diagnosed at advanced stages, when treatment outcomes are not always assertive and surgical ablation often requires expurgation of functional characteristics of the involved organs as well as surrounding tissues.[16] Thus, prevention through risk factors modification is mandatory. On this ground, the present study summarized the findings of the history of tobacco consumption and other personal habits in patients with laryngeal or hypopharyngeal cancer.

Methodology

Subject and methods: This was a descriptive type of cross sectional study, conducted in the ENT department of two of the government facilitated tertiary care hospitals from two divisions of Bangladesh, during the period of 2018 to 2021. A total 100 histo-pathologically diagnosed cases of carcinoma larynx or carcinoma hypopharynx, who were admitted in the hospital for treatment purpose and who met the selection criteria of the study, were recruited.

Data collection and analysis: Data regarding demographic information and medical history, clinical examination, laboratory investigation, radiography, endoscopy and histopathological examination were evaluated by face to face interview and checking medical records and documented in a preformed semi-structured questionnaire. The collected data has been analyzed with IBM SPSS (statistical package for social science) software, version 22. Findings have been summarized using tabulations and diagrams.

Ethical consideration: Prior to the commencement of the study, ethical approval was obtained from the concerning ethical review board. Patients have been explained about the aims and objectives of the study, assured about the confidentiality of the information and preservation all of their rights and then, informed written consent was availed from them.

Result

In the present study, among the 100 cancer patients, 65 cases were carcinoma of larynx and 35 cases were carcinoma of hypopharynx. In majority of the cases, the site of carcinoma was in the supra-glottic region (53.0%). Glottic and subglottic carcinoma were 11.0% and 1.0% respectively. Carcinoma in the pyriform fossa was in 29.0% cases and 6.0% cases was post-cricoid carcinoma (Figure I).

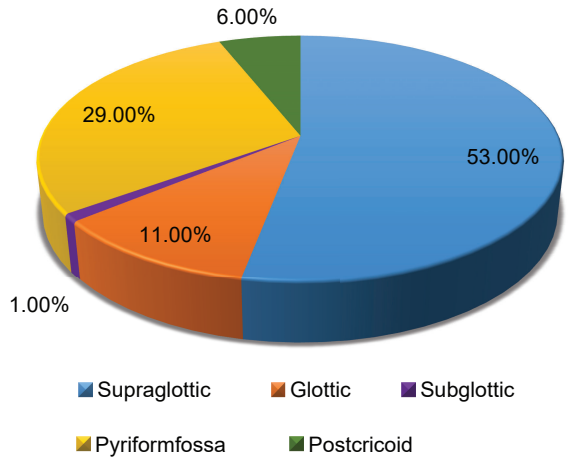


Figure 1: Distribution of the location of the carcinoma

In 97.0% cases the affected patient was male. There were 3 cases of female patients among whom, all had malignancy in the hypopharynx site. The age range of the respondents in this study was 35 to 75 years, among whom the age group of 46 to 55 years was comprised of the highest number of cases. It has been observed that, the age group of 46 to 55 years had most of the of laryngeal carcinoma (26 out of 65 cases), while in case of hypopharyngeal carcinoma, the age group of 35 to 45 years (11 out of 35 cases) and 46 to 55 years (9 out of 35 cases) was the most affected age group. Supra-glottic carcinoma was most prevalent in 46 to 55 years of age group (43.40%), glottic and subglottic carcinoma was most prevalent in 76 to 85 years age (41.67%), carcinoma of pyriform fossa was most prevalent in 36 to 45 years age (27.59%) and post-cricoid carcinomas also most prevalent in 36 to 45 years of age group (50.00%). In 83.0% cases, the respondents were illiterate and in 80.0% cases they were residents of rural area. More than half of the respondents were farmers (57.0%). Economic status of the respondents showed that, the range of monthly income of the respondents was 2000 to 12000 BDT, and based on income, 50.0% of the respondents belonged from the lower quartile, 40.0% belong from the middle quartile and 10.0% belong from the upper quartile (Table I).

Table I: Demographic characteristics and location of the carcinoma among the study participants (N=100)

	Larynx (N1=65)		Hypopharynx (N2=35)		
	Supra-glottic (n1=53)	Glottic and subglottic (n2=12)	Pyriform fossa (n3=29)	Post-cricoid (n4=6)	Total (N=100)
Gender					
Male	53 (100.00%)	12 (100.00%)	27 (93.10%)	5 (83.33%)	97
Female	0 (0.00%)	0 (0.00%)	2 (6.90%)	1 (16.67%)	3
Age					
36 to 45 years	4 (7.55%)	1 (8.33%)	8 (27.59%)	3 (50.00%)	16
46 to 55 years	23 (43.40%)	3 (25.00%)	7 (24.14%)	2 (33.33%)	35
56 to 65 years	12 (22.64%)	3 (25.00%)	7 (24.14%)	1 (16.67%)	23
66 to 75 years	9 (16.98%)	5 (41.67%)	7 (24.14%)	0 (0.00%)	21
76 to 85 years	5 (9.43%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	5
Education					
Illiterate	42 (79.25%)	10 (83.33%)	25 (86.21%)	6 (100.00%)	83
Primary level	3 (5.66%)	2 (16.67%)	2 (6.90%)	0 (0.00%)	7
Secondary or above	8(15.09%)	0 (0.00%)	2 (6.90%)	0 (0.00%)	10
Location					
Rural	52 (80.0%)	28 (80.0%)	80		
Urban	13 (20.0%)	7 (20.0%)	20		
Occupation					
Farmer	29 (54.72%)	9 (75.00%)	17 (58.62%)	2 (33.33%)	57
Business man	6 (11.32%)	1 (8.33%)	2 (6.90%)	0 (0.00%)	9
Rickshaw puller	2 (3.77%)	0 (0.00%)	1 (3.45%)	2 (3.33%)	5
Day laborer	3 (5.66%)	0 (0.00%)	2 (6.90%)	1 (16.67%)	6
Clerical job	2 (3.77%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2
Hawker	2 (3.77%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2
Other	9 (16.98%)	2 (16.67%)	5 (17.24%)	0 (0.00%)	16
Unemployed	0 (0.00%)	0 (0.00%)	2 (6.90%)	1 (16.67%)	3
Economic status					
Lower quartile	26 (49.06%)	3 (25.00%)	17 (58.62%)	4 (66.67%)	50
Middle quartile	22 (41.51%)	7 (58.33%)	11 (37.93%)	0 (0.00%)	40
Upper quartile	7 (13.21%)	0 (0.00%)	2 (6.90%)	1 (16.67%)	10

The carcinoma of the supra-glottic region showed that, majority of the patients were smokers (62.26%); 41.51% of them used to take tobacco leaf along with smoking and 3.77% of them had the habit of consuming tobacco leaf alone. The carcinoma of the glottis and subglottic region showed that, majority of the patients were smokers (58.34%); 31.03% of them used to take tobacco leaf along with smoking and 8.33% of them had the habit of consuming tobacco leaf alone. The carcinoma of pyriform fossa showed that, 62.07% patients were smokers, 31.03% patients were both smokers and tobacco leaf consumers, 3.45% patients were only tobacco leaf consumers, 3.45% patients had habit of snuff diffing along with consuming tobacco leaf and in 3.45% cases there was no history of such habits. The carcinoma of post-cricoid region showed that, 33.33% of the patients were smokers, 33.33% of the patients were consumers of tobacco leaf along with smoking and 16.67% of them had the habit of taking tobacco leaf only (Table II).

Table II: Personal habits among the study participants (N=100)

	Larynx (N1=65)		Hypopharynx (N2=35)		Total (N=100)
	Supra-glottic (n1=53)	Glottic and subglottic (n2=12)	Pyriform fossa (n3=29)	Post-cricoid (n4=6)	
TL	2 (3.77%)	1 (8.33%)	1 (3.45%)	1 (16.67%)	5
TS	33 (62.26%)	7 (58.34%)	18 (62.07%)	2 (33.33%)	60
TS & TL	22 (41.51%)	4 (33.33%)	9 (31.03%)	2 (33.33%)	33
TL & SD	0 (0.00%)	0 (0.00%)	1 (3.45%)	0 (0.00%)	1
NH	0 (0.00%)	0 (0.00%)	1 (3.45%)	0 (0.00%)	1

TL denotes tobacco leaf

TS denotes tobacco smoking

SD denotes snuff diffing

NH denotes no habit

Discussion

This study represents the low socio-economic group of patients with laryngeal and hyppopharyngeal carcinoma in Bangladesh. The remarkably alarming finding from the present study is that, among the 100 patients with cancer in the larynx and hypopharynx, 99 of them were tobacco consumers where 93.0% of them were smokers and 38.0% of them were oral tobacco leaf consumers. In one other national study, similar rate of tobacco consumption among carcinoma of larynx patients had been observed; they showed that, tobacco consumption through smoking was prevalent in 87.7% cases and tobacco consumption through chewing tobacco leaf was prevalent in 57.1% of the patients.[17] Study findings also directs toward the similar fact that, the smoking habit is more common among the lower socio economic group of people.[18,19] Moreover, research findings have recognized smoking to be the most significant risk factor of laryngeal cancer.[5,6,20,21] In this study, it has been observed that, there was 65 cases of carcinoma of larynx, where in 53 cases, the site of carcinoma was in the supra-glottic region; Glottic and subglottic carcinoma were 11.0% and 1.0% respectively. Among the 35 cases of carcinoma of hypopharynx, in 29 cases, the site of carcinoma was pyriform fossa and in 6 cases the site of carcinoma was post-cricoid region. According to the American Cancer Society, estimated 60.0% of laryngeal malignances start in the glottis and about 35.0% initiates in the supra-glottis; while subglottic carcinoma is rare.[22,23] In case of hypophayryngeal cancer, approximately 70.0% of the lesions originate in the pyriform sinus and around 5.0% in the post-cricoid region.[24,25] National and international studies showed that, laryngeal and hypopharyngeal cancer patients predominantly comes to clinical attention on their fifth to seventh decades of life with the most common age being the sixth decade, this study findings are at accordance with that.[23,26,27] Respondents of this study was mainly rural inhabitants (80.0%) and farming found to be the way of living for majority of them (57.0%). With the monthly income range of 2000 to 12000, this study represents the low-socioeconomic group of patients to be the sufferer of laryngeal and hypopharyngeal carcinoma come for treatment in the government tertiary care hospital, which was similar to the findings of the study by Hossain et al.[17]

Conclusion

Majority of the respondents of this study represents the low socio-economic group of rural people with no formal education, among whom tobacco consumption is alarmingly high. With the continuity of this trend of tobacco consumption the prevalence of laryngeal and hypopharyngeal cancers can increase which mandates for immediate strict controlling measures.

References

1. Argiris A, Karamouzis MV, Raben D, Ferris RL. Head and neck cancer. The Lancet. 2008 May;371(9625): 1695–709.

2. Almeida AÁ de, Bandeira CM, Gonçalves AJ, Araújo AJ. Nicotine dependence and smoking habits in patients with head and neck cancer. J Bras Pneumol. 2014 Jun;40(3):286–93.

3. Boçi B, Çuko A, Boçi B, Çuko A. Laryngeal cancer, risk factors, symptoms and treatment. Archives of Otolaryngology and Rhinology. 2020 Apr 23;6(1):021–8.

4. Jurkiewicz D, Dzaman K, Rapiejko P. [Laryngeal cancer risk factors]. Pol Merkur Lekarski. 2006 Jul;21(121):94–8.

5. Saffiotti U, Kaufman DG. Carcinogenesis of laryngeal carcinoma. Laryngoscope. 1975 Mar;85(3):454–67.

6. Sanders O, Pathak S. Hypopharyngeal Cancer. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 [cited 2022 Mar 14]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK567720/

7. Sasco AJ, Secretan MB, Straif K. Tobacco smoking and cancer: a brief review of recent epidemiological evidence. Lung Cancer. 2004 Aug;45 Suppl 2:S3-9.

8. Jethwa AR, Khariwala SS. Tobacco-related carcinogenesis in head and neck cancer. Cancer Metastasis Rev. 2017 Sep;36(3):411–23.

9. Nocini R, Molteni G, Mattiuzzi C, Lippi G, Section of Ear Nose and Throat (ENT), Department of Surgical Sciences, Dentistry, Gynecology and Pediatrics, University of Verona, Verona 37134, Italy, Service of Clinical Governance, Provincial Agency for Social and Sanitary Services, Trento 38123, Italy, et al. Updates on larynx cancer epidemiology. Chinese Journal of Cancer Research. 2020;32(1):18–25.

10. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018 Nov;68(6):394–424.

11. Shield KD, Ferlay J, Jemal A, Sankaranarayanan R, Chaturvedi AK, Bray F, et al. The global incidence of lip, oral cavity, and pharyngeal cancers by subsite in 2012. CA Cancer J Clin. 2017 Jan;67(1):51–64.

12. Ramsey T, Guo E, Svider PF, Lin H, Syeda S, Raza SN, et al. Laryngeal cancer: Global socioeconomic trends in disease burden and smoking habits. Laryngoscope. 2018 Sep;128(9):2039–53.

13. WHO. Global adult tobacco survey (GATS): Bangladesh [Internet]. 2009 [cited 2022 Mar 17]. Available from: https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/global-adult-tobacco-survey

14. Bangladesh Bureau of Statistics and National Tobacco Control Cell. Global Adult Tobacco Survey Bangladesh Report 2017. Dhaka. Bangladesh Bureau of Statistics and National Tobacco Control Cell,; 2019.

15. Cancer today [Internet]. 2021 [cited 2022 Mar 15]. Available from: http://gco.iarc.fr/today/home

16. Hashim D, Genden E, Posner M, Hashibe M, Boffetta P. Head and neck cancer prevention: from primary prevention to impact of clinicians on reducing burden. Ann Oncol. 2019 May 1;30(5):744–56.

17. Hossain MA, Ali MI, Rahman M, Huque SN, Alam MM, Islam MA, et al. Study on topographical distribution of carcinoma larynx. Bangladesh Journal of Otorhinolaryngology. 2011;17(2):96.

18. Hitchman SC, Fong GT, Zanna MP, Thrasher JF, Chung-Hall J, Siahpush M. Socioeconomic Status and Smokers' Number of Smoking Friends: Findings from the International Tobacco Control (ITC) Four Country Survey. Drug Alcohol Depend. 2014 Oct 1;143:158–66.

19. Garrett BE. Socioeconomic Differences in Cigarette Smoking Among Sociodemographic Groups. Prev Chronic Dis [Internet]. 2019 [cited 2022 Mar 21];16. Available from: https://www.cdc.gov/pcd/issues/2019/18_0553.htm

20. Pavlovska I, Taushanova B, Zafirova B. Risk for Occurrence of Laryngeal Cancer Among Current Cigarette Smokers. JGO. 2018 Oct;4(Supplement 2):13s–13s.

21. Lee Y-CA, Marron M, Benhamou S, Bouchardy C, Ahrens W, Pohlabeln H, et al. Active and involuntary tobacco smoking and upper aerodigestive tract cancer risks in a multicenter case-control study. Cancer Epidemiol Biomarkers Prev. 2009 Dec;18(12):3353–61.

22. Tobacco and Cancer | American Cancer Society [Internet]. [cited 2022 Mar 15]. Available from: https://www.cancer.org/cancer/cancer-causes/tobacco-and-cancer.html

23. The American Cancer Society. Throat Cancer Statistics | Cases of Throat Cancer Per Year [Internet]. 2022 [cited 2022 Mar 14]. Available from: https://www.cancer.org/cancer/laryngeal-and-hypopharyngeal-cancer/about/key-statistics.html

24. Krstevska V. Early stage squamous cell carcinoma of the pyriform sinus: a review of treatment options. Indian J Cancer. 2012 Jun;49(2):236–44.

25. Pignon JP, Bourhis J, Domenge C, Designé L. Chemotherapy added to locoregional treatment for head and neck squamous-cell carcinoma: three meta-analyses of updated individual data. MACH-NC Collaborative Group. Meta-Analysis of Chemotherapy on Head and Neck Cancer. Lancet. 2000 Mar 18;355(9208):949–55.

26. Aich M, Joarder MAH, Datta PG, Alauddin M. Hypopharyngeal carcinoma: a clinical study. Bangladesh Journal of Otorhinolaryngology. 2008;14(1):23–9.

27. Snow JB, Wackym PA, Ballenger JJ, ProQuest (Firm). Ballenger's otorhinolaryngology head and neck surgery. Shelton, CT; Hamilton, Ont.; London: People's Medical Publishing House/B C Decker; 2009.

Original Article

Prevalence Specific childhood Disease Pattern from February to July 2022 at the Dept. of Pediatric, Saheed Sayed Nazrul Islam Medical College Hospital, Kishoreganj

*Rahat Bin Habib,[1] Sujit Das,[2] Mohammad Monirul Islam Khan,[3] Mohammad Didarul Islam,[4] Sabbir Ahmed Tarik,[5] Mohammad Sakhawat Hossain[6], Md. Jahirul Haque[7], Muhammad Ataur Rahman[8], AKM Masudul Gani Bhuiyan[9], Tania Islam[10]

Abstract

Introduction: To understand of the epidemiological trend in the inpatient department (IPD), it is important for health care planning, appropriate management allocation & improving existing services facilities. Therefore, this study was done to evaluate the disease pattern of children in IPD of the Pediatric unit at Shaheed Sayed Nazrul Islam Medical College & Hospital, where children came from grass root level at Kishoreganj, Bangladesh.

Methods & Materials: This was a descriptive type of observational study. The patient came to the pediatric IPD from February 1 to July 31, 2022, six months were analyzed. Face to face interview was done through a semi structured questionnaire.

Results: A total of 724 children were enrolled during this study period. Infant 67%, total under five 83% and more than five years old was 17% of all children. Acute Respiratory tract infection was 59% and among them Pneumonia was 24%, Bronchiolitis 65%. Acute watery diarrhea was most common (8%) within GIT morbidities and eenteric fever (4%). Forty-three (6%) children suffered from Central Nervous System (CNS) diseases. Most children (n-29) suffered from Nephrotic syndrome and Acute Glomerulo Nnephritis was only 03 in count.

It is important to mentioned that some patients had no disease whereas they admitted on the interest of their parents. Female (14%) were less than the male baby and 82% were Muslim.

Conclusion: Most were preventable diseases. Children suffered mostly respiratory problems and among them Bronchiolitis was the number one illness. Prevalence of AWD was more in GIT problems. The disease frequency of this study will help to understand the depth and pattern of the problem.

Keywords: Children, Childhood disease, Prevalence, Pediatric

1. *Assistant Professor (Pediatrics), Saheed Sayed Nazrul Islam Medical College, Kishoreganj, Bangladesh
2. Asisstent Professor (Pediatrics), Saheed Sayed Nazrul Islam Medical College, Kishoreganj
3. Assistant, Professor (Pediatrics), Shaheed Syed Nazrul, Islam Medical College, Kishoreganj
4. Assistant, Professor (Pediatrics) Shaheed Syed Nazrul, Islam Medical College, Kishoreganj
5. Assistant, Professor (Pediatrics) Shaheed Syed Nazrul, Islam Medical College, Kishoreganj
6. Junior Consultant (Pediatrics) Shaheed Syed Nazrul, Islam Medical College, Kishoreganj
7. Associate Professor (Medicine), Saheed Sayed Nazrul Islam Medical College, Kishoreganj
8. Assistant Professor (Medicine), Saheed Sayed Nazrul Islam Medical College, Kishoreganj
9. Junior Consultant (Pediatrics) Shaheed Syed Nazrul, Islam Medical College, Kishoreganj
10. Assistant Professor (Pediatrics), Institute of Child and Mother Health (ICMH), Dhaka

Correspondence: Dr. Rahat Bin Habib, Assistant Professor (Pediatrics), Saheed Sayed Nazrul Islam Medical College, Kishoreganj, Bangladesh

Received Date : 15 October, 2022

Accepted Date : 20 December, 2022

Background

Child health in Bangladesh has faced significant challenges largely as a result of poverty, over-burdened healthcare services related to huge pediatric population.

Pneumonia, diarrhea, measles, malnutrition, injuries, drowning and the high number of neonatal deaths, and poor care-seeking behaviour, all contribute to the high level of child mortality.[1] But in the last few years, Bangladesh has made significant improvements in child health, to reduce child mortality. The status of child health which is reflected by under-five, infant, and neonatal mortality rate in children declined dramatically.

Mortality declines are associated with improved coverage of effective interventions to prevent or treat the most important causes of child mortality and with improvements in socio-economic conditions. Programs to ensure high coverage of vaccine preventable diseases, treatment of diarrhea and ARIs, implementation of IMCI, and delivery of newborn health interventions, have been crucial to these reductions. Moreover, Bangladesh has been reduced disparities in under 5 mortalities across different regions of the country.[2]

During the last decades, medical recordings have increased dramatically, leading to more awareness of the diseases commonly affecting pediatric age groups, opening a wide entrance to the prevention of possible complications and decrease its incidence. Routinely collected patient information has the potential to yield valuable information about health systems.

Hospital morbidity records statistics are considered reliable and used all over the world. Moreover, evaluation of characteristics of children who come in hospitals gives an insight into main medical illness in children and helps us to plan measures to overcome those.

Therefore, a review of such information helps to draw attention to the pattern of childhood illness in the community.[3] Despite different limitations, the information from this type of study may be useful to formulate the guidelines of disease profile and management in health set-ups.

This study was done to identify the prevalence of disease pattern in a tertiary care hospital where children came from grass root levels at Kishoreganj in Bangladesh.

Methods & Materials

This descriptive study was done at In Patient Department (IPD), Pediatrics of Shaheed Syed Nazrul Islam Medical College, Kishoreganj, Bangladesh from 1st February 2022 to 31st July 2022. All the children aged 2nd month to 18 years attending the IPD for 6 months were included in the study.

Exclusion criteria: Neonate and whose parents were not interested.

Inclusion criteria: i) All the IPD children aged 2nd month to 18 years.

Sample size calculation: The sample size was 1066 by n=Z2 pq/d2 (Z-1.96, p-50%, q-50% and degree of precision was 3%) and in the point estimation 95% Confidence Interval (CI) were measured. Analyzed by SPSS 26 version. I

Data were collected from a face-to-face interview, a semi structured questionnaire, and a checklist. Data extracted on age, gender, duration, locality, and provisional diagnosis. The final diagnosis was based on the presenting clinical features, clinical examinations and with or without the results of laboratory tests.

Results

A total of 724 children were enrolled during this study period. Among them infant was 42%, under five 47% (other than infants) and above five years old was 11% of all children. Female (14%) were less than the male baby and 82% were Muslim.

Most children (59%) suffered from a respiratory problem of the hundred's children. GIT problem was the 2nd highest (15%) suffered illness. Among all cases, 425 children came to IPD with respiratory morbidities. Among them almost all are LRTI. Bronchiolitis (n-276) was common than Pneumonia (n- 127).

One hundred eight babies suffered from GIT problem and it was the 2nd highest. Forty-two of babies suffered from AWD and enteric fever was 19% of total GIT problem. Children suffered (n-7) through acute abdomen and six babies from acute appendicitis. In nutritional problem almost all suffered by SAM (n-14) and one was overweight. Three percent children came with PUO. Thirty-six child admit with congenital anomalies, among them heart failure with congenital anomalies were most (n-6) and cleft palate was 14 in number.

In the Central Nervous System (CNS), 24 (3%) children suffered from Cerebral Palsy, Developmental delay, epilepsy and in combined number it was 43 children (6%). Most children (n-29) suffered from Nephrotic syndrome and AGN was 3 in count. Some parents came with child due to treatment for drowning, poisoning and snake bite. It is important to mentioned that some patients had no diseases whereas they admitted on the interest of their parents.

Table:

Systemic	Diagnosis	Frequency	Total
Respiratory	Pneumonia	127	425 (59%)
	Bronchiolitis	276	
	Bronchial Asthma	21	
GIT	AWD	42	108 (15%)
	Constipation		
	Dysentery	05	05
	Enteric fever	21	
	Gastroenteritis	08	
	Oral Candidiasis	05	
	Hepatitis	07	
	Anal excoriation	09	
	Chronic Indigestion	05	
CNS	CP+ DD	15	43 (6%)
	CP+DD+Epilepsy	24	
	Developmental delay	02	
	Epilepsy	02	
Renal	NS	22	29 (4%)
	AGN	03	
	UTI	04	
Congenital Problems	CHD	06	36 (5%)
	Cleft Lip (CL)	02	
	Cleft Palate (CP)	14	
	CL and CP	13	
	Club foot	01	
Nutrition	SAM	14	15 (2%)
	Over weight	01	
Surgery	Appendicitis	06	17 (2%)
	Acute abdomen	07	
	Abscess	04	
Pyrexia of Unknown Origin	PUO	22	22 (3%)
Others	Drowning (survived), Kerosine poisoning, snake bite etc	29	29 (4%)
Total		724	724 (100%)

GIT- Gastro-Intestinal Tract, AWD- Acute Watery Diarrhea, CNS- Central Nervous System, CP- Cerebral Palsy, DD- Developmental Delay, NS- Nephrotic Syndrome, AGN- Acute Glomerulonephritis, UTI- Urinary Tract Infection, CHD- Congenital Heart Disease, CL- Cleft Lip, CP- Cleft Palate, SAM- Severe Acute Malnutrition, PUO- Pyrexia of Unknown Origin

Discussion

Within 180 days there 724 patients were enrolled. All the patients were distributed into three age groups. Infant, under five and more than five age groups, constitute 42%, 47%, and 11% respectively. The majority of the children were under 5 years which is also similar to what has been found in Port Harcourt, Benin, Ilorin, and Abuja.[5-7] This could be due to the vulnerability of this age group as a result of incomplete immunity against infections.

Male babies were found 82 times more than female babies in this study. Male preponderance was found in other studies done in Nigeria.[8,9] This finding may reflect a gender bias in health-seeking behavior regarding their children.[10]

But that was not found in this study. Enrolled patients came from 21 Upazilla which are 13 remaining in the Kishoreganj districts and other 08 are remaining surrounding and outside of the Kishoreganj district. Six hundred seventy (93%) of the enrolled patient were due to top ten common diseases like Acute Respiratory tract infection 59%, Pneumonia (18%), Bronchiolitis (38%). Acute watery diarrhea (6%), GIT problem other than AWD was 09%, and enteric fever (3%), constipation, hepatitis, oral candidiasis, anal excoriation, dyspepsia.

The majority of admissions from AWD and Respiratory illness are also common findings in other hospitals of this country. We have ORT corner, after primary management which patients were severe of them got admitted to the hospital. Diarrheal disease, sepsis, pneumonia, and protein-energy malnutrition were the commonest diseases seen in another study. These are similar to what was observed in the Port Harcourt, Benin, Owerri, Imo, Abuja, and Kenya.[4-7]

Pneumonia, diarrhea for 41% of annual death globally and 49% in Africa.[5,7,10-13] The bulk of childhood morbidity and mortality affects mainly children under 5 years of age. [13,14] Several studies in Africa reported infectious diseases as the leading causes of childhood death.[15] ARI accounts for about 20% or more than two million deaths, making it the leading cause of death in children aged less than five years.[16] In Bangladesh, 90,000 children >1 month die from pneumonia each year. In our study patient from diarrhea is less than the usual number. It is due to awareness development of various anti diarrheal programs and home treatment is established in the rural area of Bangladesh.

Conclusion and Recommendation

Children suffered mostly respiratory problems and among them Bronchiolitis was the number one illness. Prevalence of AWD was more in GIT problems. The disease frequency of this study will help to understand the depth and pattern of the problem. Multicentric and comparative studies at rural and urban level are important to develop more effective child management strategy. Preventable diseases still constitute the major cause of morbidity and mortality in our facility and children and their impact on the health of children.

Health education on preventive strategies such as exclusive breastfeeding, provision of safe water, completing immunization, improvement in personal hygiene, and environmental sanitation should be disseminated regularly by the media.

References

1. Bangladesh Population and Housing Census 2011, Socio-economic and Demographic Report, National Series, Volume - 4, December 2012 Bangladesh Bureau of Statistics (BBS) Statistics and Informatics Division (SID) Ministry of Planning.
2. Anonymous. Housing condition of Bangladesh, Population monograph, Bangladesh Bureau of Statistics and Informatics Division, Ministry of Planning.
3. Kabir ARML, Amin MR, Mollah MAH, Khanam S, Mridha AA, Ahmed S, Rokonuddin K, Mohammod Chisti J. Et al. Respiratory disorders in under-five children attending different hospitals of Bangladesh: a cross sectional survey. Journal of Respiratory Medicine Research and Treatment. 2016;
4. Mumu SJ, Shahjahan M, Flora MS, Hafez MA. Prevalence of Bronchial Asthma among secondary school students in Dhaka City, Bangladesh Medical Journal 2012; 4(1): 28- 31.
5. Haque F, Siddaque AK, Sack RB. Patterns and risk factors for helminthiasis in rural children aged under 2 in Bangladesh. South Asian Journal of Child Health. 2011; 5 (3):1-8.
6. Anonymous. ICDDRB, UNICEF, Bangladesh, GAIN, Institute of Public Health Nutrition, National Micronutrients status survey 2011- 2012, Final report, Summary Findings: 12-13.
7. Roy E, Rahman M H, Roy R. Urinary tract infection in children: An update, Bangladesh J Child Health 2012, 36 (2): 90-97.
8. Navsria D, Joseph F, Hagan Jr. Maximizing Children's Health. In: Kliegman RM, Behrman RE, Geme JWS, Blum NJ, Shah SS, Tasker RC, Wilson KM. eds. Nelson Textbook of Pediatrics, 21st South Asian Edition. Elsevier, India. New Delhi. 2019:912-925.
9. UNICEF, WHO. Countdown to 2015 Decade Report (2000.2010): Taking Stock of Maternal, Newborn and Child Survival. Last accessed on 2012 July 20.
10. World Health Organization. Children: Reducing mortality. Fact sheet number 178. Last accessed on 2013 Dec 10.
11. Odubanjo MO. Reducing child mortality in Nigeria. Lagos The Nigerian Academy of Sciences, West African Book Publishers. 2009
12. Okolo AA. Morbidity and mortality of childhood illnesses at the emergency paediatric unit of the University of Benin Teaching Hospital, Benin City. Niger J Paediatr. 2012; 39:71-74.
13. Onyiriuka AN. Morbidity and mortality patterns of post neonatal paediatric medical admissions in a large mission hospital in Benin City, Nigeria. J Med Biomed Res. 2005; 4:49– 58.
14. Abacassamo F, Sacoor CN. A 10-year study of the cause of death in children under 15 years in Manhiça, Mozambique. BMC Public Health. 2009; 9:67-72.
15. Salam AKA. Common causes of Child mortality in Sana'a. Saudi Medical Journal.2005;26:1112-1115.
16. Frank-Briggs A.I. et al. Mortality Pattern in Children: A Hospital Based Study in Nigeria. Int J Biomed Sci. 2009; 5:369-372

Original Article

Management of Bronchiolitis with mucolytic agent (3% NaCl) in children in a hospital in Dhaka City without antibiotic

*Sudipta Roy[1], ARM Luthful Kabir[2], Kazi Selim Anwer[3], Rahat Bin Habib[4], Masuma Khan [5]

Abstract

Background: Bronchiolitis is mostly a viral disease of lower respiratory tract in infants and young children. Variation in the management has been documented. Treatment with 3 % hypertonic saline has a significantly shorter mean length of hospital stay and improved clinical severity score. Antibiotic has little role in the management of bronchiolitis though it is invariably prescribed. However, management of bronchiolitis is yet not optimized according to recommendation.

Objective: To evaluate the outcome of bronchiolitis with 3% Nacl nebulization without antibiotic.

Methodology: This observational study was conducted in Ad-din Medical College Hospital at the department of pediatrics during October, 2018 to January, 2019. Among 92 cases of clinically diagnosed bronchiolitis 30 were excluded due to prior antibiotic therapy and rest 62 cases were enrolled based on inclusion criterions (age below 2 years, 1st or 2nd episode of wheeze, runny nose, cough, respiratory distress, wheeze/ ronchi, hyperinflation / increased translucency on CXR). Consent of the parents was taken. A structured questionnaire was filled up. Detailed history was taken and full physical examination was done. CBE with PBF, CRP& CXR were done immediately after admission. All children were managed with 6 hourly 3% Nacl nebulization in addition to supportive measures whenever indicated like IV 5% dextrose in 0.225% saline, O2 inhalation, paracitamol for fever and were followed 8 hourly. Patients were discharged after returning of social smile, absence of feeding difficulty, fast breathing and free of O2 therapy. However, thirty cases were taken out of the study for increased severity or persistence of symptoms. So finally data were analysed in 32 cases using SPSS 22.

Results: Mean age of presentation was 5 months, 75% in male children. Cough and respiratory distress were present in 100 % cases, wheezing (71%), runny nose and absence of social smile in 56% cases, fever (53%), feeding difficulty (50%), vomiting (28%) sleeping difficulty (25%), subcostal recession (100%) fast breathing (68%), mouth breathing (45%), nasal flaring (40%), intercostal recession (9%), low grade fever (37%), SPO2 < 90% (71%), vesicular breath sound with prolong expiration (75%), bilateral ronchi (100%), bilateral crepitation (15%). Total leulocyte count was normal (<15,000/cmm) in 75%, lymphocytosis was found in 81%, CRP was negative (<6) in 68%. On CXR-increased translucency (100%), hyperinflation (100%), sticky density (12%) upper lobe collapse consolidation (6%). Intra venous fluid was given in 43%, O2 therapy (81%), mean duration of O2 therapy was 3 days and mean duration of clinical improvement or hospital stay was 4 days.

Conclusion: Nebulized hypertonic saline solution (3% NaCl) was found effective without antibiotic therapy in acute bronchiolitis. Therefore, routine use of antibiotic is prohibited.

Key words: Bronchiolitis, 3% NaCl, antibiotics

1. *Associate Professor, Dept. of Pediatrics, Ad-din Women's Medical College & Hospital(AWMCH)
2. Professor, Dept. of Pediatrics, Ad-din Women's Medical College & Hospital (AWMCH)
3. Head, Medical Research Unit, Ad-din Women's Medical College & Hospital (AWMCH)
4. Assistant Professor, Dept. of Pediatrics, Shahid Syed Nazrul Islam Medical College, Kishoreganj
5. Associate Professor, Dept of Pediatrics, Ad-din Women's Medical College & Hospital (AWMCH)

Correspondence: Dr. Sudipta Roy, Associate Professor, Dept. of Pediatrics, Ad-din Women's Medical College & Hospital(AWMCH), E-mail: sudipta.paediatrics@gmail.com

Received Date : 10 August 2022

Accepted Date : 25 November 2022

Introduction

Around 95% cases of bronchiolitis are of viral origin and Respiratory syncytial virus(RSV) is the commonest one,[1,2] ranging from 50% to 91%.[3,4] Epidemiological studies have revealed the association of bronchiolitis with a high degree of morbidity but low mortality.[5]

Because of the paucity of available therapeutic options, recent literature has focused on novel therapies, such as hypertonic saline, for the management of bronchiolitis. The pathology of bronchiolitis involves acute inflammation, edema and necrosis of epithelial cells and increased mucus production.[6] Mucus plugs in the airway produce partial or total air flow obstruction resulting in

atelectasis which may further worsen the breathing and respiratory function. In bronchiolitis, there is increased sodium absorption and dehydration of airway resulting in impairment of mucus clearance.[5,6] Substances that improves mucus clearance should be beneficial in resolving bronchiolitis. Hypertonic saline plays an important role in bronchiolitis by shifting the flow of water into the mucus layer by osmosis, reducing sub mucosal edema and viscosity of mucus, thereby improving mucus clearance, and rehydrating the air surface.[7,8,9,10] The updated American Academy of Pediatrics (AAP) guidelines support the use of hypertonic saline nebulization for infants and children hospitalized for bronchiolitis.[11] On the other hand, Most paediatritans are anxious about not using antibiotics and they invariably prescribe antibiotics for bronchiolitis[12] often being confused with pneumonia.[13]

Taking into account the fact that antibiotics are no longer recommended in bronchiolitis, though we are using it invariably and a certain number of studies showed the therapeutic effect of 3% NaCl nebulization, this observational study was conducted to evaluate the outcome of bronchiolitis with 3% NaCl in addition to other supportive measures but without antibiotics and compared our results with existing literatures.

Materials and Methods

This observational study was conducted in Ad-din Medical college Hospital, Dhaka, Bangladesh at the department of Pediatrics during October, 2018 to February, 2019 over a period of 5 months.

Total sample size: Initially 110 cases of clinically diagnosed bronchiolitis were enrolled for this study. Among 110 cases, 30 were excluded due to prior antibiotic therapy. Rest 80 cases fulfilled the inclusion criteria. However, another 30 cases were taken out during ongoing treatment. Among these 30 cases, few were referred to hospital with PICU support for increased severity of distress and falling oxygen saturation as we did not have PICU facilities, in some cases antibiotic was added suspecting secondary bacterial infection based on high fever and complete blood count and few parents quit the study. So, finally study was done in 50 cases.

Inclusion criteria: Any child below 2 years of age having first or 2nd episode of bronchiolitis based on cough, respiratory distress, wheeze/ronchi on auscultation,[13](137, National guidline, 2005) hyperinflation & or increased translucency on CXR whitout prior antibiotic therapy.

Exclusion criteria: Children with recurrent wheeze (3 or more), atopic condition, congenital heart disease, possible immune-deficiency and prior antibiotic therapy were excluded.

After enrollment, informed written consent was taken from the parents. A structured questionnaire was filled up. Detailed history was taken and full physical examination was done.

Investigations: CBC, PBF, CRP, CXR were done immediately after admission.

Treatment: All children were managed with 6 hourly 3% NaCl nebulization. Other supportive measures: Oxygen inhalation, IV 5% dextrose in 0.225% NaCl, Paracetamol for fever were given whenever **indicated.**

Follow - Up: 8 hourly until discharged.

Outcome Variables: Returning of social smile, no feeding difficulty, no fast breathing, no oxygen requirement in room air.

Statistical analysis: Ethical implications: Ethical considerations were taken into account at every stage. The study was approved by Ethical Review Committee, Ad-din Medical College Hospital. Anonymity of children and confidentiality of medical records were ensured. Written informed consent was secured from parents and their liberty of withdrawing child from the study at any point was ensured.

Results:

Table- I showing demographic characteristics of cases. Mean age of children was 5.07± 3.6 months, and 76% were boys, M: F - 3.1:1, exclusive breast feeding was given in 64%, 44% were exposed to passive smoking and 74% had WHZ< -2SD.

Table-I: Demographic Characteristics of Cases:

	Characteristics	Frequency (%)
Age	0-6 Months	36 (72%)
	By 7-12 Months	11 (22%)
	By 13-18 Months	3 (6%)
Mean Age	5.07± 3.6 Months	
Sex	Male (M)	38 (76%)
	Female (F)	12 (24%)
M: F	3.1:1	
Pre Term (PT),Low Birth Weight (LBW)		5 (10%)
Exclusive Breast Feeding (EBF)		32 (64%)
Exposure to Passive Smoking		22 (44%)
WHZ	<-2	37 (74%)
	-2-3	6 (12%)
	>-3	7 (14%)

Diagnosis of bronchiolitis was based on cough, respiratory distress(fast breathing), subcostal recession, bilateral ronchi, hyperinflation and increased translucency on CXR, that were present in 100% cases. (Table-II).

Table –II: Diagnostic Criteria:

Variables	Frequency (%)
Cough	50 (100%)
Respiratory Distress	50 (100%)
Subcostal Recession	50 (100%)
Bilateral Ronchi	50 (100%)
Hyperinflation on CXR	50(100%)
Increased Translucency on CXR	50(100%)

Other common symptoms were fever (60%), runny nose (56%), wheezing (76%), feeding difficulty (44%), sleeping difficulty (18%) and absence of social smile in 50% cases. (Table-III).

Table –III: Common Symptoms

Symptoms	Frequency
Fever	30 (60%)
Running Nose	28 (56%)
Wheezing	38 (76%)
Vomiting	16 (32%)
Loose Motion	10 (20%)
Feeding Difficulty	22 (44%)
Sleeping Difficulty	9 (18%)
No Social Smile	25 (50%)

Physical findings revealed distressed look in 68%, fast breathing (100%), mean respiratory rate 54.02±12.5. mean temperature 98.9±1.41 (Table-IV).

Table –IV: Physical Findings

Physical Findings	Frequency (%)
Distressed	34 (68%)
Playful	21 (42%)
Respiratory Rate (mean)	54.02 ± 12.5
Fast Breathing	36 (72%)
Nasal Flaring	14 (28%)
Mouth Breathing	16 (32%)
Intercostal Recession	7 (14%)
Suprasternal Recession	4 (8%)
Low Grade Fever (99-100F)	5 (10%)
High grade Fever (101-104F)	5 (10%)S

PO2 < 90% in 76% cases, mean SPO2 was 87.5±7.5, breath sound vesicular with prolong expiration in 76% cases. (Table-V).

Table-V: Physical Findings

Physical Findings		Frequency (%)
SPo2	Mean	87.5 ± 7.5
	<90%	38 (76%)
	>90%	12 (24%)
Hyper resonant on Percussion		12 (28%)
Breath Sound Vesicular		38 (76%)
with Prolong Expiration		
Bilateral Crepitation		5 (10%)

Mean white blood cell (WBC) count was 12,603 ± 5027, lymphocytosis (>40%) in 84%, C- reactive protein (CRP) was negative in 64%.(Table- VI)

Table-VI: Investigations

Investigations		Frequency (%)
WBC	Mean	12,603 ± 5027
	<1500/cmm	37 (74%)
	>1500/cmm	13 (26%)
Neutrophil	Mean	34.7 ± 15.3
	<70%	49 (98%)
	>70%	1 (2%)
Lymphocyte	Mean	55.9 ± 13.2
	<40%	8 (16%)
	>40%	42 (84%)
CXR	Sticky Density	6 (12%)
	Patchy Opacity	3 (6%)
	Right Upper Lobe Collapse Consolidation	2 (4%)
CRP	< 6	32 64%)
	>6	16 (36%)

All children received 3% NaCL nebulization (100%), oxygen therapy (76%) and intravenous fluid (44%). (Table – VII)

Table- VII: Supportive Rx

Supportive Rx	Frequency (%)
Counselling	50 (100%)
Nebulized 3% NaCl	50 (100%)
Oxygen Therapy	38(76%)
Intravenous Fluid(IVF)	22(44%)
Chest Physiotherapy	2 (4%)

Table –VIII & IX showing mean duration (days) of outcome variables of our cases. Mean duration of return of social smile was 1.52±1.58, normal feeding 0.74±1.12, no fast breathing 3.10±1.94, normal SPO2> 90%/ mean duration of oxygen therapy 1.82±1.39 and mean length of hospital stay 4.48±1.78.

Table –VIII: Outcome Variables

Outcome Variables	Mean Duration (Days)
Return of Social Smile	1.52 ± 1.58
No Feeding difficulty	0.74 ± 1.12
No Fast Breathing	3.10 ± 1.94
Normal SPO2 >90%	1.82 ± 1.39

Table –IX: Duration (Days)

Duration (Days)	Mean
Oxygen Therapy	1.82 ± 1.39
Length of the Hospital Stay (LOHS)	4.48 ± 1.78

Discussion:

Pharmacologic options for the treatment of bronchiolitis include oxygen (O2) therapy; beta2-adrenergic agonists, racemic epinephrine; corticosteroids; ribavirine; antibiotics; and, recently, hypertonic saline. [11] Oxygen therapies acts as a direct bronchodilator and is indicated if oxygen saturations are less than 90% in order to avoid hypoxemia. Short-acting beta2-agonists dilate the bronchioles, improving oxygenation and breathing. Several systemic reviews showed that using bronchodilator may improve clinical symptom scores, however the effects are transient; they do not play role in disease resolution, the need for hospitalization, or length of stay. Additionally, use of these medications is associated with adverse effects, including tachycardia and tremors.[14,15] As a result, the 2014 AAP guidelines no longer recommended using short acting beta2- agonists in infants and children with bronchiolitis without a reactive airway component.[11] Racemic epinephrine has its agonistic effects on alpha and beta receptors, helping to reduce edema and mucus plugging, however, its effects are transient, and studies as well as systematic reviews of the literature did not show a shortened length of hospital stay.[16,17] The use of corticosteroids in the treatment of bronchiolitis is controversial. A recent Cochrane systematic Review showed that use of corticosteroids was not associated with significant reductions in clinical scores, hospitalization rates, or length of hospital stay. However, recent literatures have focused on hypertonic saline for the treatment of bronchiolitis. [18]

Common trend in the management of bronchiolitis in our settings are use of oxygen, short acting beta-2 agonist and antibiotics as most physicians do not have enough confidence about not to use antibiotics in bronchiolitis. So, this study was conducted to evaluate the outcome of bronchiolitis using 3% NaCl nebulization with other supportive measures but without antibiotics. We selected few outcome variables which mainly helped us to take the decision of discharge such as return of social smile, no feeding difficulty, no fast breathing, normal oxygen saturation and length of hospital stay.

Between 1998 and 2014, 69 total articles were published evaluating hypertonic saline (HTS) effectiveness for bronchiolitis; 25 (36%) positive, 38 (55%) neutral, and 6 (9%) negative. However, between years 2010 and 2011, a total of 22 relevant articles were published, of which 7 were positive, 13 were neutral, and 2 were negative. Between years 2012 and 2014, 36 additional articles were published, of which 12 were positive, 20 were neutral, and 4 were negative. All of the negative studies in this period came in 2014. [19]

Kuzik et al showed that nebulized 3% hypertonic saline decreases LOHS 2.6 ± 1.9 days compared with 0.9% NaCl 3.5±2.9 days.[20] However compared to our study LOH stay was little higher 4.48 days. On the contrary, Abdul et al did not find any advantage of 3% NaCl over 0.9% NaCl in terms of LOHS and clinical severity score.[21] Sulbutamol with 0.9% NaCl nebulization is very popularly use treatment option in bronchiolitis in our country. Gupta et al mentioned that 3% NaCl is more effective and safe for non-asthmatic, moderately ill patients with acute bronchiolitis, reduced clinical severity scoring and LOHS compared to salbutamol with 0.9% NaCl. [22] Joshua et al showed that median LOHS, of patients who received HTS was 3 days .[19] In our study mean LOHS was 4.48.

The low rate of serious bacterial complications and secondary infections precludes the use of antibiotics. Treatment cost and bacterial resistance are two important concerns not to use antibiotics routinely in bronchiolitis.[23] A recent Cochrane systemic review did not find sufficient evidence to support the use of antibiotics for bronchiolitis.[12]

Kabir et al revealed that supportive therapy alone was found similar to those treated with combined supportive therapy and antibiotics (either oral or parenteral).[24] Comparison of the outcome variables between this study & a study done by Kabir et al titled "Management of Bronchiolitis Without Antibiotics: A multicenter Randomized Control Trial in Bangladesh" has shown in the following table—

Table of comparison

Outcome Variables	Improved on Specific Day	Present Study	Study by Kabir et al
No feeding Difficulty	On Day 4	100%	97.9%
No Fast Breathing	On Day 6	96%	95.8%
Normal SpO2> 90%	On Day 2	88%	93.8%
Return of Social Smile	On Day 4	100%	95.8%

Limitations: This was an observational study, which complicates the evaluation of the treatment effectiveness of HTS. small sample size, clinical severity scoring was not done.

In 2014, the American Academy of Pediatrics (AAP) published updated guidelines on the diagnosis and management of bronchiolitis, which include new recommendations on the use of hypertonic saline. From the trials reviewed in this article, it was shown that, hypertonic saline has been very well tolerated. The concomitant administration of a bronchodilator may not be necessary to reduce feared adverse effects.[1]

In conclusion, we agree with the AAP guideline (2014) regarding the use of nebulized hypertonic saline to reduce bronchiolitis scores and LOHS for infants with bronchiolitis who are expected to be hospitalized for more than 72 hours. Given the safety of this therapy and the lack of other effective therapies for these patients, use of hypertonic saline should be attempted in multiple doses in all patient care settings where nebulization can be administered.[1]

References:

1. Welliver R, Cherry JD. Bronchiolitis and infectious asthma. In: Feigin RD, Cherry JD, editors. Text book of paediatric infectious diseases. Philadelphia: WB Saunders, 1987: 278-87.
2. Mansbach JM, MC Adam AJ, Clark S, Hain PD, Flood RG, Acholonm U,et al. Prospective multicentre study of the viral etiology of bronchiolitis in the emergency department. Acad Emerg Med 2008; 15: 111-8.
3. .Kabir ML, Haq N, Amin R, Hossain A, Khatoon S, Shahin A, et al. Evaluation of hospitalized infants and young children with bronchiolitis- a multi center study. Mymensingh Med J 2003;12: 128-36.
4. Huq F, Rahman M, Nahar N, Alam A, Haque M, Sack DA, et al. Acute lower respiratory tract infection due to virus among hospitalized children in Dhaka, Bangladesh. Rev Infect Dis 1990; 8 Supp 12: S982-7.
5. Holman RC, Shay DK, Curns AT, et al. Risk factors for bronchiolitis-associated deaths among infants in the United States. Pediatr Infect Dis J. 2003;22(6):483-490.
6. Piedimonte G, Perez MK. Respiratory syncytial virus infection and bronchiolitis. Pediatr Rev. 2014;35(12):519-530.
7. Daviskas E, Anderson SD, Gonda I, et al . Inhalation of hypertonic saline aerosol enhances mucociliary clearance in asthmatic and healthy subjects. Eur Respir J. 1996;9(4):725-732.
8. Mandelberg A, Amirav I. Hypertonic saline or high volume normal saline for viral bronchiolitis: mechanisms and rationale. Pediatr Pulmonol. 2010;45(1):36-40.
9. Sood N, Bennett WD, Zeman K, et al. Increasing concentration of inhaled saline with or without amiloride: effect on mucociliary clearance in normal subjects. Am J Respir Crit Care Med. 2003;167(2):158-163.
10. Wark P, McDonald VM. Nebulised hypertonic saline for cystic fibrosis. Cochrane Database Syst Rev. 2009;2:CD001506.
11. Ralston SL, Lieberthal AS, Meissner HC, et al. Clinical practice guideline: the diagnosis, management and prevention of bronchiolitis. Pediatrics. 2014;134(5): e1474-e1502.
12. Farley R, Spurling GKP, Eriksson L, Del Mar CB. Antibiotics for bronchiolitis in children under two years of age. Cochrane Database of Systemic Reviews 2014, Issue 10. Art, No: CD 005189.
13. Asthma association, Bangladesh, 2005. National Guidelines- Asthma, Bronchiolitis, COPD. 3rd edition. Dhaka: Graphic Arts Jr. p-137.

14. Gadomski AM, Scribani MB. Bronchodilators for bronchiolitis. Cochrane Database Syst Rev. 2014;6:CD001266.

15. Wainwright C. Acute viral bronchiolitis in children—a very common condition with few therapeutic options. Paediatr Respir Rev. 2010;11(1):39-45; quiz 45.

16. Skjerven HO, Hunderi JO, Brugmann-Pieper SK, et al. Racemic adrenaline and inhalation strategies in acute bronchiolitis. N Engl J Med. 2013;368(24): 2286-2293.

17. Wainwright C, Altamirano L, Cheney M, et al. A multicenter, randomized, double blind, controlled trial of nebulized epinephrine in infants with acute bronchiolitis. N Engl J Med.2003;349(1):27-35.

18. Fernandes RM, Bialy LM, Vandermeer B, et al. Glucocorticoids for acute viral bronchiolitis in infants and young children. Cochrane Database Syst Rev. 2013;6:CD004878.

19. Davis J, Thompson AD, Mansbach JM, Piedra PA, Hasegawa K, Sullivan AF et. Al. Multicenter observational study of the use of nebulized hypertonic saline to treat children hospitalized for bronchiolitis from 2008 to 2014. 2017: 7(8) 2154-1663.

20. Kuzia BA, AL- Qadhi SA, Kent Set al. Nebulized hypertonic Saline in the treatment of viral bronchiolitis in infants. J Pediatr 2007; 151: 266-270.

21. Al-bahadily AKJM, Ai- omrani AAM, Atiya AA, Hypertonic 3% saline in comparison with 0.9% (Normal) saline in treatment of Acute Bronchiolitis. Int J Pediatr 2017; 5(1): 4209-16. DOI: 10.22038/ijp.2016.8105

22. Gupta HV, Gupta VV, Kaur G, Baidwan AS, George PP, Shah JC et al. Effectiveness of 3% hypertonic saline nebulization in acute bronchiolitis among Indian children: A quasi- experimental study. Perspect Clin Res 2016; 7: 88-93.

23. Spach DH, Black D. Antibiotic resistance in community acquired respiratory tract infections: current issues. Ann Allergy Asthma Immunol 1998; 81: 293-302.

24. Kabir ARM, Mollah AH, Anwar KS, Rahman AKMF, Amin R, Rahman ME. Management of Bronchiolitis Without Antibiotics: A Multicentre Randomized Control Trial in Bangladesh. Acta Paediatrica 2009; 98(10): 1593-1599.

Original Article

Comparison between Sodium hypochlorite (NaOCl 0.05%) and Povidone iodine (10%) In treating Poly microbial diabetic foot ulcer infection (DFUI) instead of using antibiotics

*Bhowmik NK[1], Umama Binte-Delwar[2], Sadah Hasan[3], Shifat Ara Shifa[4], Koninika Bhowmik[5]

Abstract

Introduction: Diabetes is a major health issue in Bangladesh, with 8% of the population claiming 3% of all deaths. Diabetic foot ulcer (DFU) is a common complication of DM, with 9-26 million patients worldwide each year. High blood sugar levels and smoking can lead to DFU-I and foot-related complications, leading to amputation. MDR-resistant micro-organisms can form biofilm in infection-wound sites, making it difficult to clean. Systemic antibiotic use can lead to increased mucosal permeability and hyper inflammation (collateral damage). This study aimed to provide cost-effective treatment for DFU-I to establish evidence of its usefulness and cure rates, with NaOCl 0.05% as the ideal and cost effective alternative.

Objective: To compare two locally applied antiseptic applications (NaOCl 0.05% Vs. Povidone Iodine 10%) as the treatment outcome of DFU-I in clearing polymicrobial infection by enhancing healing process.

Methodology: This cross-sectional observation study (clinico-epidemiological) was conducted among 41 adult diabetic foot ulcer infection patients (DFU-I). Patients of DFU-I studied at 4P Diabetes Care at daytime office hours (9AM to 9 PM except Fridays) during January 2021 to July 2022. Data were collected by using a hybrid designed questionnaire (close and open ended).

Results: Most of these patients (42%) belonged between 51-60 years age group who suffered from diabetes for <10 days, followed by 39% for 10-19 days, and 19% for >=20days, respectively. Of 41 patients, 46% had been diagnosed with ulcer on anterior, dorsal, foot; 32% patient on phalanges and 22% on ankle. More than half (54%) of all DFU-I patients took <24 hours to cover disinfection process. Finding also showed that, 41% patient took >21 days, 22% patient took 18-21days and 37% patient took <17days for healing their wound. Our study revealed a significant relation between treatment and age groups of patients (p=0.03), period of DM (p=0.05), having co-morbidities (p=0.02), disinfection hours (p=0.03) and healing time, respectively.

Conclusion: This study found that Sodium hypochlorite 0.05% was more effective, quicker and cheaper in treating polymicrobial diabetic infections than that of with 10% povidone iodine. However, this preliminary finding should not be taken as final until more advanced studies are conducted to accept or refute this study.

Key Words: Diabetics, Foot Ulcer, Treatment, Sodium hypochlorite, Povidone Iodine

1. *Assoc. Prof. (CC), Dept. of Medicine, Ad-din Akij Medical College Hospital, Khulna,
2. Lecturer, Dept. of Anatomy, AWMCH, Moghbazar, Dhaka,
3. Lecturer, Dept. of Pathology, AWMCH, Moghbazar, Dhaka,
4. Research Associate, Medical Research Unit, AWMC, Moghbazar, Dhaka,
5. Resident, Surgery, Rangpur Medical College Hospital, Rangpur, Bangladesh

Correspondence: Dr. Bhowmik NK, Assoc. Prof. (CC), Dept. of Medicine, Ad-din Akij Medical College Hospital, Khulna, email: bhowmiknkrishna@gmail.com

Received Date : 15 November, 2022
Accepted Date : 20 December, 2022

Introduction:

According to 2016-WHO report, 8% of total population of Bangladesh, i.e., 12.9 million people remains affected by diabetes claiming 3% of total deaths.[1] which are being rampant in DM-prevalence Bangladeshi population, observed over time.[2]

Common complications of poorly controlled diabetes mellitus (DM) is diabetic foot ulcer (DFU) the global annual estimates of which remain 9-26 million diabetic patients (6.3%)[3] being higher in males and type 2 diabetic patients than type one.[3] Contributing factors of

DFU-infections (DFU-I) are: poor foot care, peripheral vascular diseases, neuropathy, poor glycemic control, and/or poor foot hygiene[4] However, high blood sugar levels and smoking increases DFU-I [5] and increased risk of foot-related complications often leading to lower limb amputation.[6-7]

Diabetic foot ulcer infection (DFUI) is often caused by multifactorial etiologies and diabetes, which is the leading cause of non-traumatic lower-extremity amputations worldwide[6] and can be of mono- or poly-microbial nature that may cause multidrug resistant (MDR) micro-organisms in frequently forming biofilm in infection site making the infection-wound more difficult to clean using antibiotics and antimicrobial drugs. On the other hand, antibiotics must be limited to use in avoiding kidney failure and other adverse effects, systemically. Further, antibiotic causes dysbiosis of our nongenomic self that is our beneficial microbiota, and, administering antibiotic for local DFUI is not cost effective, too. Mentioning the gaps in global data in diabetes education, preventive measures, glycemic control, comorbidities, Rebecca Sorber et al apprehended that without a multidisciplinary assessment for treating DFU-I it can lead to serious consequences, such as DF-ulcer recurrence.[7]

This study, was thus, designed to give virtually cost-effective treatment for DFU-I to establish he evidence of its usefulness and cure. Since systemic antibiotics are often not effective in clearing surface infection and may form biofilm of DFU and can cause non-genomic self- micro-biota being essential for our survival.[8]

Gut microbiota dysbiosis by systemic antibiotic use causes increased mucosal permeability and hyperinflammation (collateral damage). So, eradication of polymicrobial infection of diabetic foot ulcer with local use of antiseptic like NaOCl 0.05% is ideal and cost effective than that of with 10% povidone iodine. NaOCl 0.05% does not hamper in healing process by killing growing fibroblasts, where povidone iodine may also cause hypothyroidism and can make the kidney injured.[9] However, NaOCl had been used since pre-antibiotic era during the 1st world war but became relevant still today when antimicrobial resistance (AMR) and collateral damage to human non-genomic self/healthy microbiota by using various antimicrobial drugs.

In this clinical observational study, we tried to determine which among the two **antiseptics** between diluted Sodium hypochlorite (NaOCl 0.05%) and Povidone iodine 10% remains better and more effective in healing DFU-I without using antimicrobial drugs that also delays the healing process by killing nearly 90% of growing fibroblasts. However, Iodine absorbed from wound site may cause hypothyroidism and kidney injuries, *per se*. **10-11**

I. Background

Diabetic foot ulcer (DFU) has diverse pathology from neurological, vascular, hormonal, dehydration, dermopathy to many etiopathology to form DFU, bring or more prevalent among immunocompromised patients. The common complication of poorly controlled diabetes mellitus (DM) remains diabetic foot ulcer infection (DFU-I). Poor foot care, peripheral vascular disease, neuropathy, poor glycemic control &/or poor foot hygiene remains the main contributing factors of DFU-I.[5]

Diabetic foot ulcer infection (DFUI) is polymicrobial or monomicrobial by multidrug resistant micro-organisms frequently form biofilm in infection site and becomes difficult to clean infection by antibiotics and antimicrobial drugs. Antibiotics has limitation in kidney failure, other adverse effect if given systemically. Antibiotic causes dysbiosis of our nongenomic self that is our beneficial microbiota. Antibiotic administration for local DFUI is not cost effective too. This study is designed to give virtually cost-effective treatment for DFUI and to establish evidence. A common complication of patients with poorly controlled diabetes mellitus (DM) is diabetic foot ulcer infection (DFUI). Poor foot care, peripheral vascular disease, neuropathy, poor glycemic control, and/or poor foot hygiene are the main contributing factors.**[5]**

Foot ulcers, which can cause severe tissue and bone damage, are the starting point for lower leg and foot removals. Diabetes increases the risk of needing lower limb amputation, and high blood sugar levels and smoking can also increase the risk of foot-related complications.**[6]**

DFUs are foot lesions that may affect the skin, soft tissue, and bone in lower limbs, causing an aggravating infection in diabetic patients that can lead to major amputations. This is often caused by multifactorial etiologies and diabetes, which is the leading cause of non-traumatic lower-extremity amputations worldwide.**[6]**

Data gaps in diabetes education, preventive measures, glycemic control, comorbidities, and multidisciplinary assessment and treatment of ulcers can lead to serious consequences, such as ulcer recurrence. [7] Foot ulcers are estimated to affect 9.1 million to 26.1 million people with diabetes annually.[3] The global prevalence of DFUs is 6.3%, higher in males than females, and higher in type 2 than type 1 diabetic patients.[4]

Systemic antibiotics are not effective in clearing surface infection with biofilm formation of diabetic foot ulcers rather causes to our non-genomic self that is our microbiota which is essential for our survival.[8] Gut microbiota dysbiosis by systemic antibiotic use causes increased mucosal permeability and hyperinflammation (collateral damage). So, eradication of polymicrobial infection of diabetic foot ulcer with local use of antiseptic like NaOCl 0.05% is ideal and cost effective than 10% povidone iodine as NaOCl 0.05% does not hamper healing process by killing growing fibroblasts. Moreover, povidone iodine causes hypothyroidism and kidney injury.[9-10]

This NaOCl was used in pre-antibiotic era of first world war became relevant today when antimicrobial resistance and collateral damage to our non-genomic self (Healthy Microbiota) of human race caused by various antimicrobial drugs. This observational study effectively cleared all infection within short span of moments by diluted Sodium hypochlorite without damaging by antimicrobial drugs as well as Povidone iodine 10% which delays healing process by killing nearly 90% of growing fibroblasts thus delaying healing process. Iodine absorbed from wound site may cause hypothyroidism and kidney injury.[11-12]

Diabetic foot ulcers infection (DFUI) are among the most common complications of patients with poorly controlled Diabetes Mellitus (DM), as a result of poor glycemic control, poor foot care, underlying peripheral vascular disease, and/or neuropathy. [13]

These underlying pathophysiological grounds in adjunct to co-existent factors may also predispose to more than half of the ulcers becoming infected. Infected DFUI causes patient suffering seriously and at the cost of significantly increases individual cost of OOP (out of pocket) and also create much burden to country's healthcare system. Other than economical, psychological and social burdens, DFUI also places a huge physical burden on the patient, since it a common cause of amputation of the lower extremities, globally.[13] It is therefore, remains critical to be aware of in time early interventions for DFUI. However, DFUI must be easily available, accessible, affordable and low-cost yet and cost-effective treatment/management for the patient, at large.

Several papers were reported on the economic analyses of costs and treatment outcome aimed to get relief DFU from such infection that includes systemic and topical antimicrobial therapies, debridement of slough and dressing of the wound. One of the best topical antimicrobials available to treat infected DFUI remain are 10% Povidone iodine solution, Chlorhexidine, Acetic acid 5%, Hydrogen peroxide, etc., but not without limitation.[14] Some of these have been linked to toxic effects on granulation tissue, cartilage damage, of bullae formation and inhibition of fibroblast growth. On the other hand, systemic antibiotics may cause serious microbiota damage/collateral damage .[15-16]

In these regards, cost-effective DFUI interventions have been repeated earlier given the higher DFUI prevalence and its accompanying burden suggestions that it is essential to compare available treatments to focus on the potentially cost-effective interventions towards reducing the burden. We thus aim to compare two readily available and commonly used topical antimicrobials, [10% Povidone Iodine solution vs Diluted Sodium Hypochlorite (0.05%)]. However, Diluted Sodium Hypochlorite was evidenced to be the least injurious to fibroblast growth; we prefer to go for this later than the former one.[17]

I. 1 Pathophysiology

Diabetes Mellitus (DM) has many complications and these are rapidly becoming the world's most significant cause of morbidity and mortality, and one of the most distressing is Diabetic Foot Ulcer (DFU). Chronic wound complications are a growing concern worldwide, and the effect is a warning to public health and the economy. The etiology of a DFU is multifaceted, and several components cause added together create a sufficient impact on ulceration: neuropathy, vasculopathy, immunopathy, mechanical stress, and neuroarthropathy.[18] There are many classifications of the diabetic foot. About 50% of patients with foot ulcers due to DM present clinical signs of infection. It is essential to manage multifactorial etiology of DFU to get a good outcome.[19]

I. 2 Diabetic foot Attack

The "diabetic foot attack" is one of the most devastating presentations of diabetic foot disease, typically presenting as an acutely inflamed foot with rapidly progressive skin

and tissue necrosis, at times associated with significant systemic symptoms. Without intervention, it may escalate over hours to limb- threatening proportions and poses a high amputation risk. There are only best practice approaches but no international protocols to guide management. Immediate recognition of a typical infected diabetic foot attack, predominated by severe infection, with prompt surgical intervention to debride all infected tissue alongside broad-spectrum antibiotic therapy is vital to ensure both limb and patient survival.[20]

I. 3: Details of Diabetic Foot Ulcers

DFUs are defined as foot lesions (ulcers) that may affect the skin, soft tissue, and bone in lower limbs, causing an aggravating infection in diabetic patients that can lead to very serious consequences such as lower-limb amputations. DFUs are caused by multifactorial etiologies as part of the micro vascular complications of diabetes mellitus that can lead to major amputations, in most cases by the lack of the timely and correct management of diabetic feet. Indeed, diabetes is the leading cause of non-traumatic lower-extremity amputations worldwide.[6]

These serious consequences are mostly due to the absence of data on many subjects including diabetes education, preventive measures, glycemic control, comorbidities, inappropriate multidisciplinary assessment and treatment of ulcers, and later treatment failures in the prevention of ulcer recurrence.[7] Based on the 2015 prevalence data from the International Diabetes Federation, it is estimated that foot ulcers develop in 9.1 million to 26.1 million people with diabetes annually worldwide.[3] A systematic review and meta-analysis of the global prevalence of DFUs showed that the global prevalence of DFUs was 6.3%, higher in males than in females, and higher in type 2 than in type 1 diabetic patients.[4]

In Mexico, there are around 12 million cases of diabetes mellitus, and since the overall prevalence of DFUs is 6%, it is estimated that more than 700,000 people are affected with any grade of DFUs. DFU treatment has a high cost worldwide. In the United States (US), this cost ranges from $8000 to $17,000, depending on the grade of infection and type of amputation, with the cost rising to $43,000 in the case of partial amputation to $63,100 after major amputation.[21]

All of these costs not only affect the patient's economic and psychological status but also the family's economy, the patient's disability and diminished quality of life, and the finances provided by the government and health insurance intended for diabetes treatment. In patients with diabetes, it is reported that, in most cases (60–80%), the ulcers become less aggressive, and, with the proper care, they heal. On the other hand, about 10% to 15% of these ulcers remain active and 5% to 24% lead to limb amputation in approximately 6–18 months.[22]

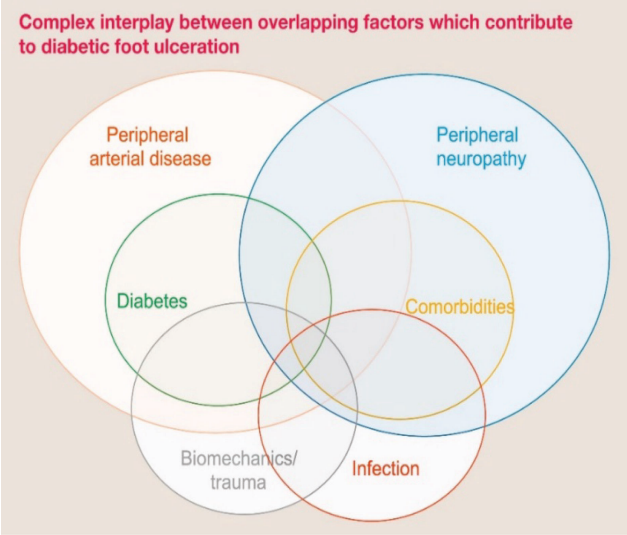
As many as 40% of patients have a recurrence within one year after ulcer healing, almost 60% have a recurrence within three years, and 65% have a recurrence within five years, making a previous incident of a foot ulcer the strongest predictor for diabetic foot ulceration. The median time to healing without surgery is about 12 weeks. The five-year risk of death in diabetes patients is 2.5 times higher in those with DFUs than without them, and the five-year mortality after diabetes-related amputations exceeds 70%, which is worse than in many common cancers.[23]

I. 4 Association between DM and DFU

A diabetic foot ulcer is an open sore or wound on the foot of a person with diabetes, most commonly located on the plantar surface, or bottom of the foot. Diabetic foot ulcers occur in approximately 15% of persons with diabetes. Of those who develop a foot ulcer, 6% will be hospitalized due to infection or other ulcer-related complication. The risk of foot ulceration and limb amputation increases with age and the duration of diabetes.[24]

I. 5 Risk factors for DF:

The main risk factors for the development of DF and the series of injuries that lead to gangrene and amputation are:



- Peripheral neuropathy
- Inadequate hygiene
- Deformities
- Old age
- High plantar pressure
- Inadequate metabolic control
- Hyperkeratosis
- Smoking
- Prior amputation
- Onychomycosis with toe nail deformity
- Inadequate shoes
- Proprioceptive loss

I. Treatment of Diabetic Foot Ulcer- Infections (DFU-I)

II.1: Treatment modalities of (DFU-I)

Successful treatment of diabetic foot ulcers consists of addressing these three basic issues: debridement, offloading, and infection control.

SODIUM HYPOCHLORITE:

Sodium hypochlorite (NaOCl) is a solution made from reacting chlorine with a sodium hydroxide solution. These two reactants are the major co-products from most chlor-alkali cells. Sodium hypochlorite, commonly referred to as bleach, has a variety of uses and is an excellent disinfectant/antimicrobial agent. **Hypochlorite** is an antimicrobial used to treat and prevent infections of the skin and tissue. Sodium hypochlorite topical is an antibiotic that fights bacteria. Sodium hypochlorite topical is used to treat or prevent infections caused by cuts or abrasions, skin ulcers, pressure ulcers, diabetic foot ulcers, or surgery. **Hypochlorite** is an antimicrobial used to treat and prevent infections of the skin and tissue

Mechanism of action:

Sodium hypochlorite mediates its antimicrobial action by reacting with fatty acids and amino acids. Via saponification reaction, it acts as an organic and fat solvent, degrading fatty acids to form fatty acids and glycerol. This reduces the surface tension of the remaining solution. Sodium hypochlorite may react with amino acids to neutralize them and form water and salt. Hypochlorous acids (HOCl) present in sodium hypochlorite solutions may act as solvents in contact with organic tissue to release chlorine, which forms chloramines when combined with the protein amino group that disrupt cell metabolism Chlorine in the solution is a strong oxidant that inhibits essential bacterial enzymes leading to an irreversible oxidation of SH groups 1. Eventually Hypochlorous acid and hypochlorite ions degrade and hydrolyze amino acids.

II. 2: Pathway from Treating DFU-I to Ultimate Amputation:

Lower leg and foot removals begin with foot ulcers. An ulcer that won't heal causes severe damage to tissues and bone. It may require surgical removal (amputation) of a toe, a foot or part of a leg. People living with diabetes have an increased risk of needing lower limb amputation. Wounds or ulcers that do not heal are the most common reason for amputation. Factors such as high blood sugar levels and smoking can increase the risk of foot-related complications, which can lead to a need for amputation.

II.3: Role of Starting treatment from Initial Stage to avoid amputation(s):

Using a superficial antiseptic such as sodium hypochlorite at the initial stages of foot ulcer would prove to be very much effective in saving the limb rather than not taking appropriate measures in the early stages, which will eventually lead to amputation.

Amputation itself is a very costly procedure. Starting from the routine investigation to choosing very skilled medical personnel for this surgical procedure the whole process is lengthy and takes a toll on both the patients and their attendance.

Also, such major surgical procedures come with risks, complications and medical failure. Whereas using a proper antiseptic solution to clean the debridement is cost effective, time saving, easier.

III. Aims and Objectives:

III.1: Aims: To Compare two locally applied antiseptic applications (NaOCl 0.05% Vs. Povidone Iodine 10%) as the treatment outcome of DFU-I in clearing polymicrobial infection by enhancing healing process.

III.2 Specific Objectives:

The purpose of this study was to compare the response of clearing polymicrobial diabetic foot ulcer infection that enhance healing process by Sodium hypochlorite (NaOCl 0.05%) Vs. 10% povidone iodine.

IV. Methodology:

Research Design: Clinical Research on patients with diabetic foot ulcer infection (DFUI)

Study Type: Observational study.

Study Design:

This clinico-epidemiological study was conducted on diabetic foot ulcer patients to compare the treatment

outcome of two groups of antiseptic solutions (NaOCl 0.05% Vs. Povidone Iodine 10%) used.

Study period: January 2021 to July 2022

Place and time of selecting patients

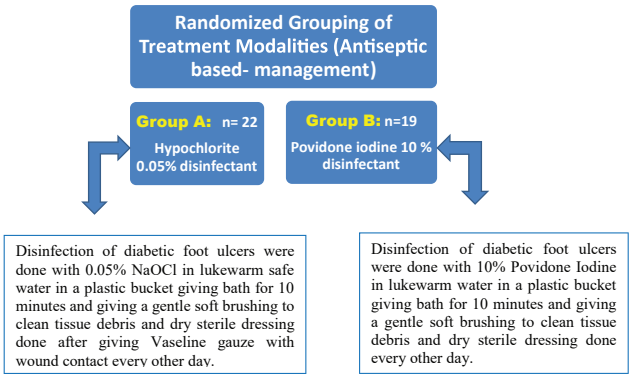
Patients of diabetic foot ulcers with infection were recruited through referral and direct patent visit to our 4P Diabetes Care at daytime office hours from 9AM to 9 PM except Friday.

Study population:

Total 41 adult diabetic patients with infected ulcers were enrolled sequentially over a period of one and a half year. Among them 5 patients were refused treatment by tertiary care hospital as because of critical conditions which requiring surgical treatment under general anesthesia.

Randomized Grouping of Treatment Modalities

Every patient was provided best cost-effective treatment for Diabetes as well as for comorbidities. Twenty-two patients with infected diabetic foot ulcers were placed on wound care with Sodium hypochlorite 0.05% and rest 19 patents placed on povidone iodine 10%. Diabetic foot ulcer patients were randomly assigned with-



However, the cost of other ailment treatment was borne by patients' family support.

Training on follow up methods:

After practical training of wound care- stock solutions in dark bottle given with patients' wound care volunteers. The bottles were numbered with patients' ID. Author and nurses knows which solution inside bottle. Bottles were assigned randomly from very beginning of wound care. As healing with hypochlorite 0.05% was speedy later recruitment of patients were placed on mostly hypochlorite 0.05%. Most of the volunteers were instructed to take high definition photograph of wound serially and over video conversation,

Inclusion Criteria: Those who agreed and consented to include in this wound care study after explaining pros and cons of study were included in this project

Exclusion Criteria: Those who were not agreed and consented to include in this wound care study after explaining pros and cons of study were excluded in this project

Data Management:

Data collection:

Data was collected using a hybrid designed questionnaire (structured: close ended and some open ended) was used to collect data/ information. This questionnaire was pre-tested (on 1% subject) on diabetic foot ulcer patients of Ad-din Women's Medical College and Hospital, Maghbazar, Dhaka.

Data Cleaning:

Printed out data on listed variables and tallied with the data sheet, Treated all blank cells for better database, Avoided duplication, Pointing errors, Unnecessary space was removed, Converted all texts into numbers, Checked all the spelling properly

Data Entry:

SPSS Win V.22.0 was used for entering and recoding all collected data.

Data Quality Control: For the quality assurance, each data was double-checked followed by entering the data into the PC for logical check. Data collected from each interviewee was coded and analyzed.

Data Analysis Plan:

Finally, data were analyzed using the software 'Statistical Package Social Sciences (SPSS) version, 22.0.

Results and Findings:

Table-1: Age of the respondent's

Age	Frequency	Percent
<50 years	11	26
51-60 years	17	42
>60+ years	13	32
Total	41	100.0

Table 1 shows Majority of patients' recoded age (42%) belonged to 51-60 years (n=17), followed by <50 years age group (26%) and >60+ years age group (32%).

Table-2: Duration of Diabetes Foot Ulcer- Infections

Duration of Diabetes	Frequency	Percent
<10days	17	42
10-19	16	39
>=20 days	8	19
Total	41	100.0

Table-2 yields large majority (42%) of all respondents suffered from diabetes <10 days. Following that 39% & 19% were suffered from diabetes 10-19 days and >=20days respectively (Table 2).

Table-3: Other Diagnosis among the respondent's

Other Diagnosis	Frequency	Percent
HBV, HCV, PAD, Osteosarcomas	7	17
IHD, HTN, DLPAD, CKD, CLD	22	54
NAFLD, NASH, DL	12	29
Total	41	100.0

Among all the patients, majority patients 54% (n=22) had also another disease (**ischemic heart disease**-IHD, Hypertension-HTN, Peripheral Arterial Diseases-PAD, Chronic Kidney Disease-CKD, Chronic Liver Disease-CLD) along with diabetic foot ulcer (Table 3).

Table-4: Ulcer site among the respondent's

Ulcer Site	Frequency	Percent
Anterior Dorsal Foot Heel	19	46
Phalanges	13	32
Ankle	9	22
Total	41	100.0

Of 41 patients, 46% had been diagnosed with ulcer on Anterior, Dorsal, Foot; 32% patient had been diagnosed with ulcer on Phalanges; 22% patient had been diagnosed with ulcer on Ankle (Table 4).

Table-5: Hours of disinfection performed

Disinfection Hours	Frequency	Percent
<24 hours	22	54
24-48 hours	8	19
<48 hours	11	27
Total	41	100.0

Table 5 shows, 54% patient took <24 hours for disinfection process where 19% patient took 24-48 hours and 27% patient took <48 hours for disinfection process.

Table-6: Healing time of patient

Healing time	Frequency	Percent
<17days	15	37
18-21days	9	22
>21days	17	41
Total	41	100.0

Table 6 shows among all (41) patient, 41% patient took >21 days, 22% patient took 18-21days and 37% patient took <17days for healing wound.

Table-7: Association of Treatment outcome with Patient's Age, Gender, BMI & DF-infection Duration

Table-7.1: Association of DF-infection treatment with age of patients

Treatment modalities (antiseptic used)	Age of patients			Total	Chi square test of significance (p value)
	<50 Years	51-60 years	>60+ years		
Sodium hypochlorite (NaOCl)	5	13	4	22	P=0.03
Povidone Iodine	6	4	9	19	
Total	11	17	13	41	

Table- 7.1 yielded the prevalence of using Sodium hypochlorite (NaOCl) antiseptic agent was higher among 51-60 years aged patient (n=13) than using Povidone Iodine antiseptic agent (n=4). It had been observed there has positive significant differences (p=0.03) between patients

Table-7.2 Association of DFU-infection treatment with duration of patient's diabetes

Treatment modalities (antiseptic used)	Diabetes period			Total	Chi square test of significance (p value)
	<10days	10-19 days	>=20 days		
Sodium hypochlorite (NaOCl)	4	12	6	22	P=0.05
Povidone Iodine	13	4	2	19	
Total	17	16	8	41	

Another finding also showed that Sodium hypochlorite (NaOCl) antiseptic agent also effective for those who (n=6) had a longer diabetic period (>=20days) compared to Povidone Iodine antiseptic agent. Among 8 patients who had a longer diabetic period only 2 patients had used to Povidone Iodine antiseptic agent for healing wound. There had significant difference (p=0.05) between diabetes period and treatment modalities (antiseptic used) **Sodium hypochlorite (NaOCl)** solution **and Povidone Iodine.**

In table-7.3 shows of total 41 patients, patients who had suffer from (IHD+HTN+DLPAD+CKD+CLD) diseases, mostly patients (n-16) used Sodium hypochlorite (NaOCl) Antiseptic agent which was effective for them compared to **Povidone Iodine antiseptic agent.** There had also significant difference (p=0.02) between other complications and treatment modalities (antiseptic used) **Sodium hypochlorite (NaOCl)** solution **and Povidone Iodine.**

In table-7.4 shows among all patients n=17 patients needed only <24 hours for disinfection who had used to Sodium hypochlorite (NaOCl) antiseptic agent where only n=5 patients needed <24 hours who had used to Povidone Iodine antiseptic agent for disinfection. Nearby, n=2 patients needed >48 hours for disinfection who had used to Sodium hypochlorite (NaOCl) antiseptic agent where n=9 patients needed >48 hours who had used to Povidone Iodine antiseptic agent for disinfection. It had been yielded that there had highly positive association (p=0.03) between disinfection hours and treatment modalities (antiseptic used) **Sodium hypochlorite (NaOCl)** solution **and Povidone Iodine.**

Table-7.3: Association of treatments with other co-morbidities of patients

Treatment modalities (antiseptic used)	Other diseases			Total	Chi square test of significance (p value)
	HBV+ HCV+PAD + Osteosarcomas	IHD+HTN+DLPAD+ CKD+CLD	NAFLD + NASH +DL		
Sodium hypochlorite (NaOCl)	3	16	3	22	p=0.02
Povidone Iodine	4	6	9	19	
Total	7	22	12	41	

Table-7.4 Association of treatments with hours of disinfection

Treatment modalities (antiseptic used)	Disinfection hours			Total	Chi-square p value
	<24hours	24-48hours	>48hours		
Sodium hypochlorite (NaOCl)	17	3	2	22	P=0.03
Povidone Iodine	5	5	9	19	
Total	22	8	11	41	

Table-7.5: Association of treatments with healing time

Treatment modalities (antiseptic used)	Healing time		Total		Chi square, p value
	<17days	18-21days	>21days		
Sodium hypochlorite (NaOCl)	12	8	2	22	P<0.01
Povidone Iodine (PI2)	3	1	15	19	
Total	15	9	17	41	

In table-7.5 yielded, of 41 patients, n=12 patients needed only <17 days for healing wound using Sodium hypochlorite (NaOCl) antiseptic agent and only n=3 patients needed <17 days using Povidone Iodine antiseptic agent for healing wound. Adjacent to, only n=2 patients needed >21 days for healing wound using Sodium hypochlorite (NaOCl) antiseptic agent where n=15 patients needed >21 days using Povidone Iodine antiseptic agent for healing wound. It had been yielded that between healing time and treatment modalities (antiseptic used) **Sodium hypochlorite (NaOCl)** solution **and Povidone Iodine** had highly positive association (p<0.01).

Discussion:

A report from WHO in 2016, 8% of our total population in Bangladesh (12.88 million) remain affected by diabetes whereas 3% of total deaths of all-ages occurred due to diabetes.[1] According to 2016-WHO report, 8% of total population of Bangladesh, i.e., 12.9 million people remains affected by diabetes claiming 3% of total deaths which are being rampant in DM-prevalence Bangladeshi population, observed over time. [1,2]

Diabetic foot ulcer (DFU) has diverse pathology from neurological, vascular, hormonal, dehydration, dermopathy to many etiopathology to form DFU, bring or more prevalent among immunocompromised patients. The common complication of poorly controlled diabetes mellitus (DM) remains diabetic foot ulcer infection (DFU-I). Poor foot care, peripheral vascular disease, neuropathy, poor glycemic control &/or poor foot hygiene remains the main contributing factors of DFU-I.[11]

Polymicrobial biofilm formation on ulcers causing hard to eradicate this infection by systemic antibiotics. Some infections are multidrug resistant monomicrobial also cured by this NaOCl 0.05%. Systemic antibiotics if given causes our non-genomic self-injury to our healthy microbiota, by that way causes a vicious cycle to our health in many ways. As infection site of diabetic foot ulcer has less vascularity microbe's biofilm cannot be removed by systemic antimicrobial drugs. So, local disinfectant like sodium hypochlorite in diluted form is very effective tool since pre-antibiotic era as Dakin's solution.

Today in post antibiotic era it again became useful in ours research. Here we compared with povidone iodine which is used widely around the globe to clean wound, but it had some negative effects such as it might cause growing fibroblast injury thus hampering healing process, may cause hypothyroidism by Iodine absorption from wound site and it may cause kidney injury too as in radio contrast (Iodine based) renal injury. In case of NaOCl no such adverse effects rather it can be used in zidney failure patients' wound care.

Each and every patient is poor if we can give care of DFUI infection in such virtually cost free care with NaOCl, it may be a role model of DFUI care in the world.

A common complication of patients with poorly controlled diabetes mellitus (DM) is diabetic foot ulcer infection (DFUI). Poor foot care, peripheral vascular disease, neuropathy, poor glycemic control, and/or poor foot hygiene are the main contributing factors.[11]

Foot ulcers, which can cause severe tissue and bone damage, are the starting point for lower leg and foot removals. Diabetes increases the risk of needing lower limb amputation, and high blood sugar levels and smoking can also increase the risk of foot-related complications.[6]

DFUs are foot lesions that may affect the skin, soft tissue, and bone in lower limbs, causing an aggravating infection in diabetic patients that can lead to major amputations. This is often caused by multifactorial etiologies and diabetes, which is the leading cause of non-traumatic lower-extremity amputations worldwide.[19] Data gaps in diabetes education, preventive measures, glycemic control, comorbidities, and multidisciplinary assessment and treatment of ulcers can lead to serious consequences, such as ulcer recurrence.[20] Foot ulcers are estimated to affect 9.1 million to 26.1 million people with diabetes annually.[6] The global prevalence of DFUs is 6.3%, higher in males than females, and higher in type 2 than type 1 diabetic patients.[7]

This study evaluated the response of Sodium hypochlorite (NaOCl 0.05%) to clearing polymicrobial diabetic foot ulcer infection and enhancing healing process. Effective infection clearing can prevent contiguous osteomyelitis and prevent osteotomy and limb amputations. Sodium hypochlorite (NaOCl) is a solution made from reacting chlorine with sodium hydroxide solution, containing major co-products from most chloral-alkali cells. It has a variety of uses and is an effective disinfectant/antimicrobial agent. Hypochlorite is an antimicrobial used to treat and prevent infections of skin and tissue. Hypochlorite is an antimicrobial used to treat and prevent infections caused by skin and tissue diseases, such as cuts or abrasions, skin ulcers, pressure ulcers, diabetes, and surgery.

NaOcl is superior to povidone iodine in antimicrobial action, as it acts as an organic and fat solvent, degrading fatty acids to form fatty acids and glycerol, and reacting with amino acids to neutralize them and form water and salt. Hypochlorous acids (HOCl-) present in sodium hypochlorite solutions act as solvents in contact with organic tissue to release chlorine, which forms chloramines when combined with the protein amino group that disrupt cell metabolism. Chlorine in the solution is a strong oxidant that inhibits essential bacterial enzymes leading to an irreversible oxidation of SH groups 1.

The most important idea is to compare two cost-effective DFUI interventions, Diluted Sodium Hypochlorite and Povidone Iodine solution, to reduce the burden of fibroblast growth.[15] The best topical antimicrobials available to treat DFUI are 10% Povidone iodine solution, Chlorhexidine, Acetic acid 5%, Hydrogen peroxide, but not without limitation.[5] Systemic antibiotics can have toxic effects on granulation tissue, cartilage damage, bullae formation, and fibroblast growth.[13-14]

Foot ulcers in patients with diabetes should be treated to reduce the risk of infection and amputation, improve function and quality of life, and reduce health-care costs. [23]

Using sodium hypochlorite at the initial stages of foot ulcer is effective in saving the limb, but it is costly and takes a toll on both the patients and their attendance. Antiseptic solutions are also cost-effective, time saving, and easier.

Sodium hypochlorite (NaOCl) is a solution made from reacting chlorine with a sodium hydroxide solution, two of which are major co-products from most chlor-alkali cells. It has a variety of uses and is an excellent disinfectant/antimicrobial agent. However, it does not result in an improvement in clinical outcomes, while it has promising properties that result in significant improvement in probing pocket depth and clinical attachment level. More studies are needed to confirm these observations.

Diabetic foot ulcer has diverse pathology and is easily infected by polymicrobial biofilm formation, which can be cured by NaOCl 0.05%. Systemic antibiotics can cause non-genomic self-injury to our healthy microbiota, which can lead to a vicious cycle. Local disinfectant like sodium hypochlorite in diluted form is an effective tool in post-antibiotic research.

Here we compared with povidone iodine which is used widely around the globe to clean wound, but it had some negative effects such as it might cause growing fibroblast injury thus hampering healing process, may cause hypothyroidism by Iodine absorption from wound site and it may cause kidney injury too as in radio contrast (Iodine based) renal injury. In case of NaOCl no such adverse effects rather it can be used in kidney failure patients' wound care.

Each and every patient is poor if we can give care of DFUI infection in such virtually cost-free care with NaOCl, it may be a role model of DFUI care in the world.

Conclusion:

Though findings of this study evidenced Sodium hypochlorite 0.05% as quicker and cheaper in yielding more effectiveness in treating polymicrobial diabetic infections towards speedy healing in comparison to 10% povidone iodine, this preliminary finding should not be taken as final, unless more advanced studies using larger samples are conducted to accept or refute our finding.

Conflicts of interest: None. Declared.

Acknowledgement: We are indebted to all the diabetic foot ulcer patients who consented on this study to establish an evidence based treatment on diabetic foot ulcer infection. We are also indebted to our clinical team including microbiologist and radiologists and nurses for their invaluable support in this research work.

References:

1. WHO. Diabetes country profiles, 2016: Bangladesh. France: WHO (2016).
2. Akter S. et al. Prevalence of diabetes and prediabetes and their risk factors among Bangladeshi adults: a nationwide survey; WHO; 2014
3. Nariani Souza GalvãoMariana Alves BandeiraVera Lucia Conceição de Gouveia Santos Prevalence of diabetic foot ulcers and their associated factors in patients from public hospitals in manaus-am Journal of Tissue Viability29 July 2021.
4. Andreza Oliveira-Cortez Isabela Rodrigues Ferreira Daniel Nogueira Cortez Incidence of the first diabetic foot ulcer: A systematic review and meta-analysis Diabetes Research and Clinical PracticeAvailable online 24 February 2023.
5. Edmonds M, Manu C, Vas P. The current burden of diabetic foot disease. J Clin Orthop Trauma

2021;17:88–93. https://doi.org/10.1016/ j.jcot.2021.01.017.

6. Yasmin Ezzatvar Antonio García-Hermoso Global estimates of diabetes-related amputations incidence in 2010–2020: A systematic review and meta-analysis Diabetes Research and Clinical Practice1 December 2022.
7. Rebecca Sorber Christopher J. Abularrage Diabetic foot ulcers: Epidemiology and the role of multidisciplinary care teams Seminars in Vascular Surgery5 February 2021.
8. Understanding Microbial Biofilms. https://doi.org/10.1016/B978-0-323-99977-9.00040-5
9. Antiseptic effectiveness with fibroblast preservation, Ann Plast Surg. 1991 Sep;27(3):265-8.
10. Povidone Iodine Disinfection Associated with Hypothyroidism and Potentially Contributing to Prolonged Kidney Failure, Case Rep Crit Care. 2021 Jun 24
11. Hawthorne R. Dakin, Henry Drysdale (1880-1952), biochemist. Am Natl Biogr 2000, doi:http://dx.doi.org/10.1093/anb/ 9780198606697.001.0001/anb-9780198606697-e-1300380
12. Hawthorne RM Jr. Henry Drysdale Dakin, biochemist (1880-1952): the option of obscurity. Perspect Biol Med. 1983;26:553-566.
13. Edmonds M, Manu C, Vas P. The current burden of diabetic foot disease. J Clin Orthop Trauma 2021;17:88–93. https://doi.org/ 10.1016/j.jcot.2021.01.017.
14. Zhang P, Lu J, Jing Y, Tang S, Zhu D, Bi Y. Global epidemiology of diabetic foot ulceration: a systematic review and meta-analysis (†). Ann Med 2017;49(2): 106–16.
15. Belizário, J.E., Faintuch, J., 2018. Microbiome and gut dysbiosis. In: Silvestre, R., Torrado, E. (Eds.), Metabolic Interaction in Infection, Experientia Supplementum. Springer, Cham, pp. 459–476
16. Human Microbiome Project, C. (2012). Structure, function and diversity of the healthy

    human microbiome. Nature, 486(7402), 207–214.
17. Coates D. A comparison of sodium hypochlorite and sodium dichloroisocyanurate products. J Hosp Infect 1985; 6:31–4
18. M. Monteiro-Soares, D. Russell, E.J. Boyko, et al.Guidelines on the classification of diabetic foot ulcers (IWGDF 2019) Diabetes Metab Res Rev, 36 (suppl 1) (2020 Mar),
19. A. García-Inzunza, A.M. Valles-Medina, F.A. Muñoz, G. Delgadillo-Ramos, L.G. Compean-Ortiz Validity of the Mexican version of the combined Foot Care Confidence /Foot-Care Behavior scale for diabetes Rev Panam Salud Publica., 38 (2015), pp. 35-41
20. KR Reveles, BM Duhon, RJ Moore, EO Hand, CK Howel, Epidemiology of methicillin-resistant Staphylococcus aureus diabetic foot infections in a large academic hospital: implications for antimicrobial stewardship PLoS One, 24 (2016), pp. 1-8
21. Abha Jodheea-Jutton Sandip Hindocha Archana Bhaw-Luximon; Health economics of diabetic foot ulcer and recent trends to accelerate treatment The Foot4 February 2022...
22. Cynthia Fournier Narcisse Singbo Marie-Marthe Thibeaul; Outcomes of Diabetic Foot Ulcers in a Tertiary Referral Interdisciplinary Clinic: A Retrospective Canadian Study Canadian Journal of Diabetes12 September 2020.
23. S. Seidu X. Cos K. Khunti update to the position statement by Primary Care Diabetes Europe: a disease state approach to the pharmacological management of type 2 diabetes in primary care; Primary Care Diabetes16 February 2022.
24. Andreza Oliveira-Cortez Isabela Rodrigues Ferreira Daniel Nogueira Cortez Incidence of the first diabetic foot ulcer: A systematic review and meta-analysis Diabetes Research and Clinical Practice.

Original Article

Lipid Profile of Type 2 Diabetic Patients Attending in a Tertiary Care Medical College Hospital in Dhaka City

*Jakia Haque[1], Shahana Jasmin[2], Taposhi Farzana[3]

Abstract

Background: Type-2 diabetes mellitus (T2DM) is reported as an independent risk factor for coronary artery disease, which remains 3 to 4-folded riskier for diabetic patients. Previous studies evidenced an association of T2DM with increased risk of cardiovascular diseases (CVDs) which varies among males and females. The present study aims to analyze the lipid profile of T2DM patients and compare the lipid profile of T2DM males and females in Dhaka.

Objective: To compare the difference in serum lipid profile between male and female patients suffering from T2DM.

Methods: This cross-sectional study was conducted at the Department of Biochemistry, Dhaka Medical College Dhaka. In this study we included 100 diagnosed T2DM patients (male, n= 54 and female, n= 46) aged 21 years and above selected from OPD Dept. of Endocrinology, Dhaka Medical College Hospital (DMCH). Fasting plasma glucose (FPG), Total cholesterol (TC), low density lipoproteincholesterol (LDL-C), high density lipoprotein cholesterol (HDL-C) and triglycerides (TG) concentrations values were estimated by enzymatic method. And, values were analyzed for each group which were subjected for statistical analysis using paired students t-test on SPSS/ Win, V. 22,to identify differences in lipid profiles of diabetic males and females. Prior to start the study ethical permission was taken from Ethical Review Committee of DMCH.

Conclusions: Our findings yielded the extent of dyslipidemia among T2DM population remains a major risk factor for CVD, particularly among the T2DM males having higher LDL-C and TG than females. This data suggests that males remain at higher risk to develop CVD than females.

Keywords: Lipid profile, Type-2 diabetes mellitus**.**

Introduction

Diabetes mellitus, particularly Type 2 diabetes mellitus (T2DM) remains one of the predominant forms of diabetes worldwide, including Bangladesh. We report here the lipid profile of T2DM-patients representing from a Tertiary Care Medical College Hospital in Dhaka city, Bangladesh**.**

Globally, the prevalence of diabetes among all age-groups has been estimated as 2.8% in 2000 which raised to nearly double (4.4%) in 2030. It has been reported to be one of the serious health problems being the 3rdgreatest cause of death all over the world, if remain untreated, as reported from Nepal. T2DM is responsible in producing several complications affecting different organs in the body. The prevalence of diabetes for all age-groups worldwide was estimated to be 2.8% in 2000 and 4.4% in 2030.[1]

Dyslipidemia has been noted to play an integral role in the pathogenesis and progression of micro and macro vascular complications in Diabetes Mellitus (DM) patients.[2] Total lipid profile/ lipid panel of an individual remains a contributory factor resulting from patient's own blood cholesterol along with its other varieties of associated lipoproteins i.e., high-density lipoproteins (HDL-C or α-lipoproteins), very low-density lipoproteins (VLDL-C or pre-β-lipoproteins) and triglycerides.

Diabetic patients with type 2 diabetes mellitus are at greater risk of developing vascular diseases because of

1. *Assistant Professor of Biochemistry, Ad-Din Women's Medical College, Maghbazar, Dhaka.
2. Associate Professor of Biochemistry, Mainamati Medical College, Cumilla.
3. Associate Professor of Biochemistry, Central Medical College, Cumilla.

Correspondence: Dr. Jakia Haque, Assistant Professor, Department of Biochemistry, Ad-Din Women's Medical College, Maghbazar, Dhaka, 1217.

Received Date : 22 September, 2022
Accepted Date : 10 October, 2022

lipid changes.[3] Hyperlipidemia is a condition excess of fatty substances called lipids, largely cholesterol and triglycerides, in the blood. It is also called hyperlipoproteinemia because these fatty substances travel in the blood attached to proteins. This is the only way that these fatty substances can remain dissolved while in circulation.[4]

The lowering of LDL cholesterol level leads to reduce the risk of coronary heart disease. The increasing in serum cholesterol levels (HDL) raises the risk of incidence of coronary heart disease. Low HDL-cholesterol increases the risk of cardiovascular disease. Although the correlation between serum cholesterol levels and atherosclerosis diminishes with advancing age, when cholesterol is fractioned into its atherogenic LDL and protective HDL components.[5] Therapeutic inertia with regard to glucose, blood pressure, and lipid management in patients with diabetes has been demonstrated in multiple studies around the world.[6]

Type 2 diabetes mellitus is the predominant form of diabetes mellitus worldwide; thus, this study was conceived to investigate the lipid profile of Type 2 diabetic patients presenting for treatments at a Tertiary Care Medical College Hospital in Dhaka city.

Materials and Methods

This cross-sectional study was conducted in the Department of Biochemistry, Dhaka Medical College, Dhaka. In this study, 100 diagnosed T2DM patients were taken in which 54 T2DM male patients as male (Group A) and 46 T2DM female (Group B) were selected from department of Endocrinology, DMCH.

Individuals aged 21 to 70 years living in Dhaka city were enrolled. fasting plasma glucose (FPG), triglyceride (TG), high density lipoprotein cholesterol (HDL-C), total cholesterol, low density lipoprotein cholesterol was estimated by enzymatic method.

About 5 ml of blood was collected aseptically from each participant after overnight fasting for estimation of TG, T-cholesterol, LDL-c and HDL-c. Biochemical analysis was carried out using auto-analyzer. Fasting blood glucose level >126 mg/dl[7] and diagnosed patient of DM either on hypoglycemic drugs or insulin were included in the study.

Normal ranges for lipid profile were taken as: TG<150 mg/dl; TC<200 mg/dl; HDL>40 mg/dl and LDL<130 mg/dl.[8]All values were statistically analyzed by using the SPSS 22.0 package for windows.

Results:

In present study, 100 patients of Type 2 DM were considered, out of which 54 were males and 46 were females. Biochemical parameters were estimated.

The following table-1 shows that the mean age of male patients was 40.58 ± 7.30 and of female was 38.96 ± 6.40 that did not yield ant difference (p=0.24).

Table I: Age of the study subjects (n=100)

	Male (n=54)	Female (n=46)	p value
Age (years)	40.58 ± 7.30	38.96 ± 6.40	0.240

Group A: Male Diabetic patients. Group B: Female Diabetic patients.
Unpaired't'-test was performed to measure level of significance.
Any p values at <0.05 was considered as significant.

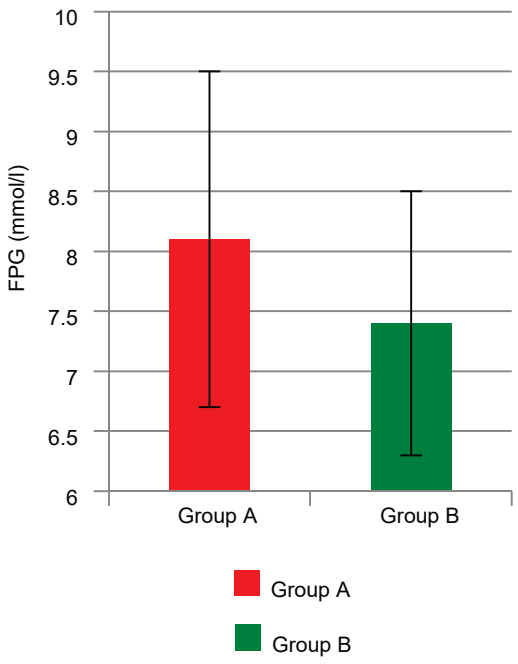


Fig. 1: Bar diagram showing FPG of the study subjects

Figure-1 above demonstrates the level of fasting blood glucose (FBG) shows higher levels both among male and females.

Table II: Distribution of the study subjects by lipid profile (n=100)

Lipid Profile	Group A (n=54) N (%)	Group B (n=46) N (%)	P Value
Total Cholesterol (mg/dl)			
≤200 (normal)	29 (54%)	33 (66%)	< 0.05
> 200	25 (46%)	17 (34%)	
Mean±SD	190.67±21.18	179.25±19.73	
Triglycerides (mg/dl)			
≤150 (normal)	22 (44%)	36 (72%)	< 0.05
> 150	28 (56%)	14 (28%)	
Mean±SD	159.29±17.37	140.42±16.71	
HDL (mg/dl)			
<40	29 (58%)	27 (54%)	> 0.05
> 40 (normal)	21 (42%)	23 (56%)	
Mean±SD	35.45±7.25	38.33±6.26	
LDL (mg/dl)			
≤130 (normal)	30 (60%)	34 (68%)	< 0.05
> 130	20 (40%)	16 (32%)	
Mean±SD	127.23±15.49	119.17±14.89	

t-test was performed to measure the level of significance at p<0.05

Our findings shows that the lipid profile(serum TC, TG and LDL-C) was found to vary significantly: being higher in male (190.67±21.18, 159.29±17.37, and, 127.23±15.49, respectively) than the female ones (179.25±19.73, 140.42±16.71, and, 119.17±14.89, respectively)which differedsignificantly (p<0.05). This interpretations has also been depicted in bar diagram (Fig. 2).

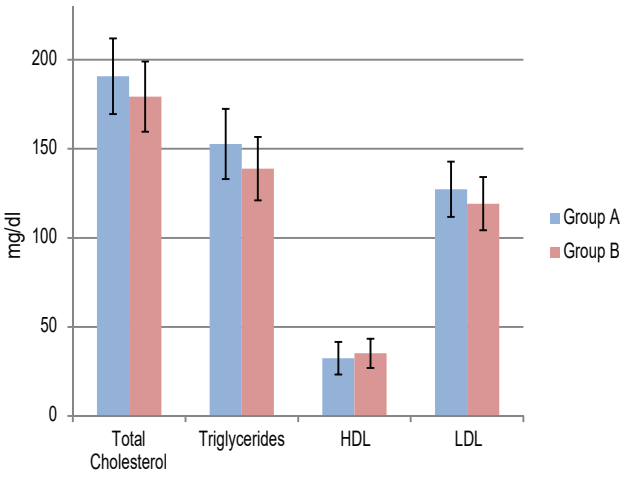


Fig 2: Bar diagram showing lipid profile of the study population

Discussion

Lipid abnormalities are common in diabetics and frequently seen in type-2 diabetics. Dyslipidemias make diabetics prone to develop CHD and other complications of atherosclerosis. In a study conducted in Hazra division, Pakistan the author stated that according to US-CDC, 97% of Pakistani adults with diabetes who had >one lipid abnormalities, with a prevalence of diabetic dyslipidemia varying from 25% to 60%. Patients with type 2 diabetes. Those patients also had other lipid abnormalities, including hyperchylomicronemia, elevated levels of very low-density lipoprotein cholesterol (VLDL-C), low-density lipoprotein cholesterol (LDL-C) and triglycerides; including low levels of high-density lipoprotein cholesterol (HDL-C).[7-9]

However, our findings yielded that fasting plasma glucose level in our study patients was higher in male diabetics compared to female patients but that did not differ significantly (p=0.24).

Contrary to our findings on lipid profile were found significantly higher in males for TC at 190.67±21.18,TG at 159.29±17.37, and LDL-C at 127.23±15.49 than the female Patients being 179.25±19.73, 140.42±16.71 and

119.17±14.89, respectively, differing significantly ($p< 0.05$). But a study in Pakistan conducted in 2016 by Zulfiqar et al. reported type 2 diabetes in 300 patients, where they found higher FPG in females than males though not significantly differed. However, serum TG,TC and LDL–C among their study patients which were elevated among male than females.[10]These observations go with our findings.

Another study by Mouza et al. in 2016 in Fujairah, United Arab Emirates among T2DM patients, where Low level of (HDL-C) was the most common pattern of dyslipidemia but observed more among the in male diabetic patients (55%) followed by elevated triglycerides level (29%)[11]which remains consistent with our study findings.

A cross-sectional study was conducted by Nasir et al.in 2008 in Hazra division, Pakistan in which Among 100 patients with Type 2 Diabetes, 78 were found to have hypertriglyceridemia. Hypertriglyceridemia along with impaired LDL-Cholesterol[9]- which also remained similar to that of our findings. Moreover, another study by Khursheed et al., in Multan, Pakistan on lipid abnormalities reporting higher triglyceride in 31% patients, high LDL in 19%, low HDL in 11%, high cholesterol in 14% and combined hyperlipidemia in male diabetic patients.[12] All these findings remained at par of our findings, though varied a little bit in its percentages. Contrarily, findings of a study from India, by Shyamala et al, in India among 171 T2DM patients (59 females &112 males) revealed that females had higher LDL-C in females than males, while other lipid parameters TC, TG & HDL-C did not differ[13]- which remains consistent with that of ours.

Conclusion:

Findings of this study demonstrated existence of dyslipidemia in T2DM patients which is remains a major risk factor for CVD. We found that TC, TG, LDL-C & lower HDLC were observed more in males compared to that of females suggesting higher CVD-risks. We recommend further multi-center studies involving larger samples before refuting or accepting our findings.

References

1. Yadav NK, Thanpari C, Shrewastwa MK, Mittal RK. Comparison of Lipid Profile in Type-2 Obese Diabetics and Obese Non-diabetic Individuals. A hospital Based Study from Western Nepal. Kathmandu Univ Med J 2012;39(3):44-47
2. Sultana MS, Akhter Y, Parvin M, Alam MMU, Naznin L, Wahab MA.Lipid Profile Pattern in Type 2 Diabetes Mellitus Patients. JAFMC Bangladesh. Vol 14, No 2 (Dec), 2018.
3. Edo State, Nigeria, Alaiya, T. H., Omozokpia, U. M., Omeni, A. A., Adekanle, E., Olafeide, O. S. Lipid profile of type 2 diabetes patients attending Irrua Specialist Teaching Hospital Irrua, Int'l J Comm Research 2015; 4(1): 2-6.
4. Mohammed J. Study of lipid profile in diabetic patients. Misan J for Acad Studies, 2017 (31)
5. Murwan K Sabahelkhier, Mohammed A Awadllah, Atif SM Idrees, Ali A-G A Rahheem Mohammed, MAR Idris. Nova J Med & Biological Sci. Vol. 5(2) 2016:1-9. DOI: 10.20286/nova-jmbs-050203
6. Chellamma Jayakumari 1, Puthiyaveettil Khadar Jabbar, Sarayu Soumya, R V Jayakumar , Darvin Vamadevan Das, Gopi Girivishnu, et al.Lipid Profile in Indian Patients With Type 2 Diabetes: The Scope for Atherosclerotic Cardiovascular Disease Risk Reduction. Diabetes Spectr. 2020 Nov;33(4):299-306. doi: 10.2337/ds19-0046.
7. Am Diabetes Association(2017). Classification and diagnosis of diabetes, Diabetes Care, 40(1), pp. S11-S24.
8. NCEP (2001) ATP IIIAt-A-Glance:Quick Desk Reference. Available at: http://www.nhlbi.nih.gov/files/docs/guidelines/atglance.pdf. (Accessed 26 March 2016).
9. Nasir Ahmed, Jahangir Khan, Tahir Saeed Siddiqui. Frequency of Dyslipidemia in Type 2 Diabetes Mellitus in Patients of Hazara Division. J Ayub Med Coll Abbottabad 2008;20(2). http://www.ayubmed.edu.pk/JAMC/Past/20-2/Nasir.pdf
10. Zulfiqar Ali Amin1, Qamar Ul Islam, Mohammad Asim Mehboob. Comparison of serum lipid profile in Type-2 Diabetics withand without retinopathy in Pakistani population. Pak J Med Sci. 2016;32(6): 1349-1353. doi: https://doi.org/10.12669/pjms.326.11056
11. Mouza Alsaadi, Sundus Qassim, Farah Hamad and Zakia Metwali. Pattern of Dyslipidemia in patients with type 2 Diabetes Mellitus in Fujairah, United Arab Emirates. Eu J Pharmaceutical Med Research. 2016,3(2), 340-347
12. Khursheed M Uttra, Bikha R Devrajani, Syed ZA Shah, T Devrajani, T Das, S Raza & N Naseem. Lipid Profile of Patients with Diabetes mellitus(A Multidisciplinary Study). World Applied Sci J 12 (9): 1382-1384, 2011
13. Shyamala K. Venkatesh, Sudheer KMV, Mohana KT. Lipid profile analysis of type 2 diabetic patients in Bengaluru population, India. IntJ Research in Med Sci 2018 Jun;6(6):2049-53.

Case Report

Cystic Fibrosis- A Deadly, Dear and Agonizing Tale

*Sudipta Roy[1], ARM Luthful Kabir[2], Kazi selim Anwar[3], Rahat Bin Habib[4]

Abstract

Cystic fibrosis (CF) is a life constraining autosomal recessive disorder common in Caucasians.Customary presentations are chronic productive cough, recurrent and persistent pneumonia, failure to thrive, chronic diarrhoea.However, pancreatitis is a kenned complication of CF. Now a days, CF is increasingly detected in South and East Asia.Prevalent notion is that, CF does not subsist in our community.Lack of awareness regarding CF among physicians, poor index of suspicion and unavailability of diagnostic facilities cause consequential delay in diagnosis. Living with CF is expensive and also colossal sufferings. It is associated with enormous economic burden for family and has a great impact on life of patient and parents. Here, we report the tragic tale of a girl of 13 years , who was diagnosed as CF with chronic pancreatitis and pancreatic calculi at the age of 10, though her symptoms commenced to manifest as early as 3 months and finally she died at her 13 in our hospital after 54 days of battling for life.

Introduction

Cystic fibrosis (CF) is a complex recessive disorder caused by mutation in cystic fibrosis transmembrane conductance regulator (CFTR) gene resulting in defective epithelial transport of chloride through CFTR Channel.[1] Patients with CF conventionally present in the first two years of life with chronic productive cough, recurrent pneumonia, resistant asthma, failure to thrive, chronic diarrhea (steatorrhea) and dehydration.[2]However, Pancreatitis is a known complication of cystic fibrosis (CF) and may be the first manifestation of the disease in some cases.[3]CF is a life limiting genetic disorder common in Caucasians of North America, Australia and Europe.[4] CF is increasingly detected in South and East Asia, Africa and Latin America in these days.[5]

1. *Assistant Professor, Department of Paediatrics, Ad-din Women,s Medical College Hospital (AWMCH), Dhaka, Bangladesh
2. Professor and Head, Department of Paediatrics, AWMCH, Dhaka, Bangladesh
3. IUHW,Narita,Chiba,Japan
4. Assistant Professor,Department of Paediatrics, Saheed Sayed Nazrul Islam Medical College,Kishoreganj, Bangladesh

Correspondence: Dr. Sudipta Roy, Assistant Professor, Department of Paediatrics, Ad-din women,s Medical College Hospital(AWMCH), Dhaka, Bangladesh E-mail: sudipta.paediatrics@gmail.com

Received Date : 10 October, 2022

Accepted Date : 15 November, 2022

Living with CF is extravagant. The disease is associated with considerable economic cost. Our case report highlights the encumbrance of CF in terms of its impact on quality of life for both patient and parents and expenditure. Here, we report a case of a 13 years old girl, who had been suffering since early infancy and was diagnosed as a case of CF with chronic pancreatitis with pancreatic calculi at her 10,but unfortunately she succumbed to her malady at 13 in our hospital after 54 days fighting for life.

Case Summary

SY, a girl of 13, was born at term at home normally with unremarkable perinatal and neonatal period. Until the age of 3 months there was no symptoms, post that she got first episode of "pneumonia" and was hospitalized, received antibiotic and ameliorated.But subsequently she developed recurrent episodes of homogeneous respiratory issues. Most of the time she had to visit in regional government or private hospital, got hospitalizedand was considered as a case of recurrent pneumonia but was never referred to a Paediatric Pulmonologist in the early stage of her life. She additionally failed to gain her expected weight since early infancy. Three years back, at the age of 10 years, she experienced for first time severe agonizing generalized abdominal pain aggravated after taking fatty meals. That time she was suggested by some relative to consult to PaediatricPulmonologist in Ad-din medical college

Fig.-1: *CXR showing hyperinflation, increased*

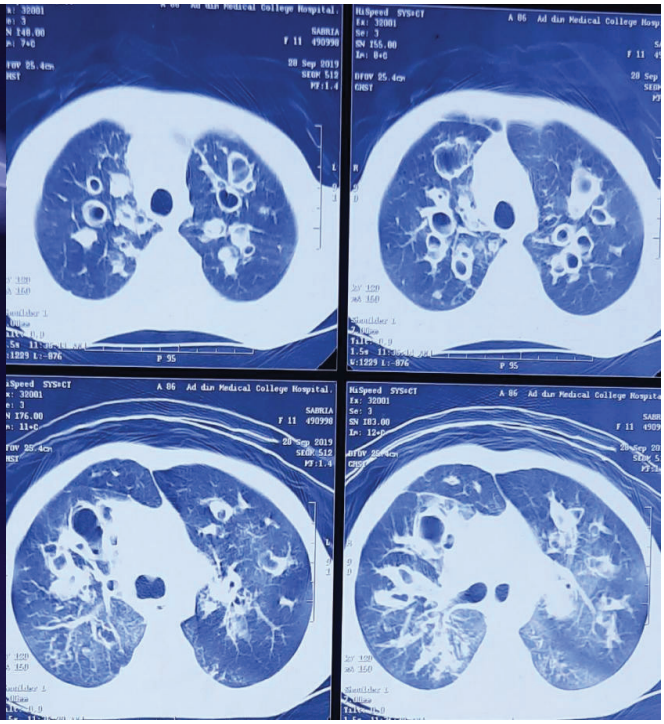


Fig.-2. *CT scan chest. bilateral bronchiectasis*

Bronchovascular markings, patchy opacities.(signet rings, dilated bronchi).

Fig.-3: *Pancreatic stone in ERCP.*

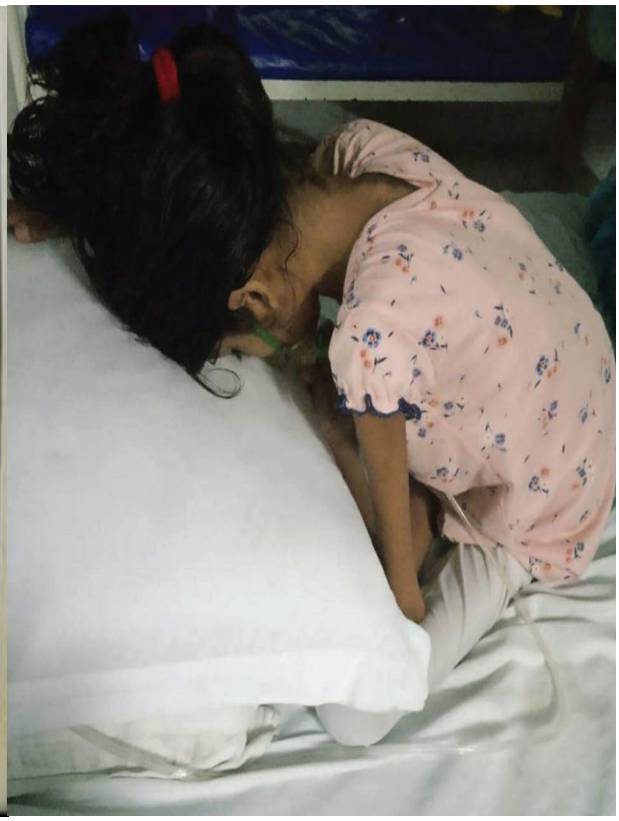


Fig.-4: *Girl sitting bending forward.*

hospital. Her severity of cough further incremented for last two years, became productive, almost persistent and worsening at morning. So, at the age of 10, her diagnosis was substantiated by us with sweat chloride test as cystic fibrosis with persistent pneumonia with bronchiectasis with chronic pancreatitis with pancreatic calculi with growth failure. Pancreatic calculi were partially extracted by ERCP, and she was on all ancillary measures, maintained regular follow up and also required subsequent hospitalization.

Family history: SY was the third issue of a non-consanguineous marriage. One of her elder sisters died at the age of 14 years who also had unresolved persistent pneumonia. SY's younger brother additionallydied at the age of two months with some undiagnosed respiratory issues.Two of her siblings are in good health.

Socioeconomic background of her family: Her father studied upto class 8 and is an electrician. Mother completed class 5 and is a housewife. Father is the only earning member and his monthly income is on average 10-12 ThousandTaka. They live in a tin-shed house and own a modicum of land.

Encumbrance of disease cost for family: SY used to fall ill so often that she needed frequent hospitalization since her early infancy. On average, she required hospitalization for 3/4 times per year. So, she was admitted to hospital around 50 times in her lifetime. Average duration of hospital stay was around 2-3 weeks or more. To bear her treatment cost (investigations, medicines,transport, hospital charge etc.) and to run the family, her father was compelled to sell his 2 autorickshawsfor 8 Lakhs Taka. He has also,sold the land owned by him for 12 Lakhs Taka. Moreover, he has taken a loan of 25 Lakhs Takato accommodate the cost. Total expenditure for her treatment was around 30-40 lakhs Taka.

The tragic end of a cystic fibrosis patient: SY was admitted to paediatric ward on 16th May 2020 for the last time with worsening of respiratory distress and cough. She was dyspneic having clubbing of nails and toes. Respiratory rate was 64/min, SPO2-87%, chest movement and expansibility of chest were restricted on both sides, air entry was poor and bilateral extensive crepitations were present on both lung fields. Her BMI-10.55, below 3rd centile (underweight), HAZ -4.46(severe stunting).

In-spite of several episodes of antibiotic therapy, oxygen inhalation and other ancillary measures her pneumonia unfortunately failed to amend rather deteriorated gradually and complicated with type 2 respiratory failure, compensated hypochloremic metabolic alkalosis and hypokalemia. At that critical stage of patient,parents were asked about the need to shift her to pediatric intensive care unit(PICU) for metabolic derangement but to bear the cost was beyond their capabilities. So, parents were ready to accept the grievous consequences. We endeavored our best with all ancillary measures within our capabilities but could not able to alleviate her sufferings. Most of the time she used to spend bending forward in a pillow to surmount hypoxia. But, whenever she felt better, never forgot to live, to smile, even she relished optically canvassing cartoon etc. on mobile in her last days. But alas! After 54 days of hospital stay, she took her last breath.

Investigations:

Complete blood count (CBC) Hb%- 8.3 gm/dl,white blood cell(WBC) 9580/cmm, neutrophil-60.8%, lymphocytes -32.5%

ESR-90 mm in first hour, **CRP-** 188.24 mg/L

Sputum for C/S-growth of klebsiella species, **gram stain**- gram negative bacili

Chest X ray-hyperinflated lungs, thickened bronchial wall and prominent bronchovascular markings, bilateral patchy opacities

CT scan of chest- Bilateral bronchiestasis(signet ring apperrance, septal thickening, ground glass appearance, dilated bronchi)

Arterial blood gas analysis: PH- 7.4, pCO2- 68.4 mmHg (H),pO2-89.3 mmHg(L),HCO3-43.3 mmol/L(H), Na-136.3, K -2.78(L),Cl-84.7(L)

Sweat chloride test- 133mmol/L (H)

In favor of pancreatitis

Amylase-106U/L (N-95U/L) , **Lipase**- 92 U/L(N-13-60 U/L)

USG of whole abdomen- chronic calculus pancreatitis

MRCP- chronic calcific pancreatitis with mild to moderate dilatation of pancreatic duct with intraluminal calculi

ERCP-chronic calcific pancreatitis, papillectomy followed by stone extraction(incomplete) done.

Discussion

A large scale study in Bangladesh with 95 CF patients on clinical and sociodemographic characteristics over a period of 17 years has been conducted for first time by Kabir et al. .Clinical features were categorized as 1) major triad symptoms (persistent cough 100%, respiratory distress 90%, purulent sputum 73.7%), 2)minor triad of signs(crepitation83%, clubbing 71%, chest in drawing 58%) and 3)minor duet from history (recurrent/ persistent pneumonia 83%, bronchiolitis 57%).[6]Our patient presented with almost all above mentioned recurrent respiratory symptoms since early life and she developed pancreatitis in older age. Several other studies also revealed predominant pulmonary manifestations. Shah et al[7]reported 80.6% pulmonary symptoms in Pakistan, and 48.8% reported by North American CF Registry in CF patients.[8] She had several episodes of recurrent/persistent pneumonia, that ultimately complicated into irreversible bronchiectasis. Aziz et al[9]and Kabra et al[10] reported persistent pneumonia in 98% patients in their studies. There was evidence of bronchiectasis in 60% and 80.7% patients in HRCT of chest in studies done by Kabir et al[6] and Aziz et al respectively. [8]

Pancreatitis is a rare manifestation of CF, affecting < 2% of patient with CF.[11] The girl experienced 3 episodes of exacerbation of chronic pancreatitis commenced at the age of 10, with pancreatic calculi which was partially extracted by ERCP. Shwachman et al. reported 10 patients of cystic fibrosis with acute or recurrent pancreatitis but without calcification.[12]Nahar et al also reported a case of CF with chronic pancreatitis with pancreatic calculi.[13]In our previous observation malabsorption was present in 37% and fecal fat in stool in 53%cases that clearly reflected exocrine pancreatic insufficiency.[6]However, none of them suffered from frank pancreatitis.

Most of the morbidity and more than 90% of the mortality of CF are related to chronic pulmonary infection and its complications.[14]The girl also died from recurrent lower respiratory tract infections that leaded to bronchiectasis, compromising lung function and consequently type 2 respiratory failures.

Kabir et al showed 87% children were underweight (81% severe, 6% moderate). Overall stunting in under 5 children was 87% and short stature in 68% in elder children > 5 years.[6] These results are consistent with Kabra et al [10]and Aziz et al[9]. The girl was also severely underweight and stunted as well. The growth failure in Cf is the consequences of chronic illness, malabsorption, anorexia, inadequate nutritional supply due to poverty and increased metabolic demand.

Mean age of onset of symptoms was 15 months in the studies conducted by Kabra et al[10] and Aziz et al[9]and 16.9 months by Kabir et al[6].But SY presented as early as 3 months. The average age of diagnosis was 54 months and 36 months in 2 studies conducted by Kabra et al[10] in India and Aziz et al[9] in Pakistan, respectively. Kabir et al.[6] showed mean age of diagnosis was 90 months in Bangladesh. Even in America, median age of diagnosis among Indian American was 12 months compared with 6 months among Caucasian American children.[15] Unfortunately SY was diagnosed at the age of 10 years. This wide gap reflects a low index of suspicion, unavailability of diagnostic facilities and lack of awareness about the occurrence of CF in Bangladeshi children. So, it is clearly shown that lack of cognizance regarding CF is a consequential factor for this delayed diagnosis. The girl had been suffering from recurrent episodes of pneumonia with faltering demanding hospitalization for several of times. Recurrent pneumonia with growth failure always reflects underlying chronic lung pathology. But the child was never referred to a Pediatric Pulmonologist for confirmation of diagnosis in her early life. So, at the time of diagnosis most CF patients already develop advanced bronchiectasis.

There is no curative treatment for CF. Patient's lifespans are greatly shortened with alive expectancy of roughly 40 years in western country.[16]In our previous study, 11 out of 95 CF children died at their early teen in Bangladesh.[6]The girl died at the age of 13 years only. So, among several factors, delayed diagnosis is one of the major contributor causing increased morbidity and early mortality of our CF children comparing with western countries.

In Bangladesh, 59% CF children belonged to low, 28% mid income group families with their average monthly budget < 26,675 Bangladeshi taka.[6]SY's family belonged to low income group with monthly income only 12,000 taka.

Consanguinity is associated with increased risk of CF.50% consanguineous marriage of parents of CF patients was reported by Aziz et al [8] in Pakistan and 80% in a Middle Eastern population reported by Al-Mahroos et al[17] and 22% in Bangladesh by Kabir et al[6]. Incase of our patient, though her parents are not involved in consanguineous

marriage, but as their other two children also died from similar respiratory issues, so it clearly reveals autosomal recessive mode of inheritance. Therefore, early and confirmatory diagnosis is very crucial for the patient as well as for parents for proper understanding of genetic background and mode of inheritance of the disease and risk of recurrence in future pregnancy.

Parents faced psychological and economic challenges for the long-term suffering of their child. Diagnostic dilemma further raised their anxiety. Parents were well known about the ultimate fate of CF after confirmation of diagnosis. We can easily assume how much psychological and mental trauma they were going through. Being a poor family, cost of living with CF is truly extravagant. The parents spent around 30-40 lakhs Taka for her treatments. To bear the cost of disease for a poor family is really enormous burden. Chevreul et al showed the total average annual cost of CF was 29,746 Euro per patient in France that is around 28,70,191 Bangladeshi Taka. Total cost was higher in adults than in children and increased with disease duration.[17]

Although nearly all people with CF in USA have health insurance, the treatment and care regimen for CF is expensive even for individuals with comprehensive insurance and health care costs can quickly exceed what a family can afford. Forty five percent people with cystic fibrosis spend 5000 US dollar or more annually in USA. The CF Foundation of USA is working on multiple fronts to support access and to keep CF care affordable by advocating for the CF community with policymakers, payers, and drug manufacturers.[18] In contrast, there is no such health insurance or health care facilities for CF patients in our country, so total cost of a CF patient need to afford by the family.

Conclusion: Cystic fibrosis is a lifelong disease and there is no remedy. Early diagnosis and extensive auxiliary treatment only can reduce child's morbidity; can ameliorate quality of life and increment life expectancy. Common Belief among physician is that CF does not subsist in our community. So, knowledge of physician regarding CF, high index of suspicion, prompt referral of a child with recurrent respiratory issue and early diagnosis and treatment can alleviate child's suffering and financial cost to some extent. Proper counseling of parents regarding disease course, genetic consequences and prognosis should be made empathetically for better understanding.

References

1. Mickle JE, Cutting GR. Clinical implications in Cystic FibrosisTransmembrane Conductance Regulator Mutations. In: Fiel SB, editor. Clinics in Chest Medicine. Vol. 19. Philadelphia: WB Saunders Company; 1998. pp. 423–41.
2. Chang E Zabner J. Precision Genomic Medicine in CysticFibrosis.Clin Transl Sci. 2015;8(5):606-610.
3. Bertin C, Pelletier AL, Vullierme MP, Bienvenu T, Rebours V, Hentic O, Maire F, Hammel P, Vilgrain V, Ruszniewski P, Lévy P. Pancreas divisum is not a cause of pancreatitis by itself but acts as a partner of genetic mutations. Am J Gastroenterol. 2012; 107(2):311-7.
4. Chang E Zabner J. Precision Genomic Medicine in CysticFibrosis.Clin Transl Sci. 2015;8(5):606-610.
5. Yamashiro Y, Shimizu T, Oguchi S, Shioya T, Nagata S, Ohtsuka Y. The estimated incidence of cystic fibrosis in Japan. J Pediatr Gastroenterol Nutr.1997;24:544–7.
6. Kabir ARML, Roy S, Habib RB, Anwar KS, Mollah MAH, Amin R et al. Cystic Fibrosis Diagnosed Using Indigenously Wrapped Sweating Technique: First Large-Scale Study Reporting Socio-Demographic, Clinical, and Laboratory Features among the Children in Bangladesh A Lower Middle Income Country. Global Pediatric Health.2020;7:1-15.
7. Shah U, Moatter T, Bhutta ZA. Profile and Factors Determining Outcome in a Cohart of Cystic Fibrosis Patients Seen at the Aga Khan University Hospital, Karachi, Pakistan. Journal of Topical Pediatrics. 2006;52(2): 132-135.
8. Cystic Fibrosis Foundation Patient Registry2004, Annual Data Report to the Center Directors. Bethesda, Maryland: 2010.
9. Aziz DA, Billoo AG, Qureshi A, Khalid M, Kirmani S. Clinical and laboratory profile of children with Cystic Fibrosis: Experience of a tertiary care center in Pakistan. Pak J Med Sci. 017;33(3):554-559.
10. Kabra SK, Kabra M, Lodha R, Shastri S, Ghosh M, Pandey RM, et al. Clinical profile and frequency of delta f508 mutation in indian children with cystic fibrosis. Indian Pediatr. 2003;40(7):612-6
11. Conklin L, Zeitlin PL, Cuffari C. Cystic fibrosis presenting as recurrent pancreatitis in a young child with a normal sweat test and pancreas divisum: a case report. Journal of Medical Case Reports 2008, 2:176

12. Shwachman H, Lebenthal E, Khaw KT. Recurrent acute pancreatitis in patients with cystic fibrosis with normal pancreatic enzymes. Pediatrics. 1975;55(1): 86-95.

13. Nahar L, Karim B, Yasmin A, Rani Das S, Nahar K, Marjan P. Cystic Fibrosis with Pancreatic Insufficiency: A Case Report. Clin Case Rep Int. 2020; 4: 1139.

14. O'Sullivan BP, Freedman SD. Cystic fibrosis. Lancet. 2009; 373:1891–904. [PubMed]

15. Bertin C, Pelletier AL, Vullierme MP, Bienvenu T, Rebours V, Hentic O, Maire F, Hammel P, Vilgrain V, Ruszniewski P, Lévy P. Pancreas divisum is not a cause of pancreatitis by itself but acts as a partner of genetic mutations. Am J Gastroenterol. 2012;107(2): 311-7

16. Orphanet: cystic fibrosis. [Internet]. [cited 2013 Oct 22]. 17.Al-Mahroos F. Cystic fibrosis in Bahrain, incidence, phenotype and outcome. J Trop Pediatr 1998; 44: 35–9.

17. Chevreul K , Brigham KB , MichelM , Rault G , Burqol RD Research Network. Costs and health-related quality of life of patients with cystic fibrosis and their carers in France Journal of Cystic Fibrosis 2015;14: 384–391.

18. Regenstein, Marsha, PHD. Results from the CF Health Insurance Study. Results presented at the North American Cystic Fibrosis Conference; October 2018; Denver, CO.

Review Article

Ascariasis in South Asia: Major Manifestations of Surgical Importance

*Sardar Rezaul Islam[1], Shafiqur Rahman[2], Sardar Saminul Islam[3], Shaikh Mahmud Kamal Vashkar[4], Mohammad Hanif[5]

Abstract

Introduction: Since a quarter of world's population reportedly affected by Ascariasis round worm being endemic in south east Asian subcontinent like gangetic plain of Bangladesh, West Bengal, Kashmere valley etc. Biliary ascaiasis is one of the manifestation of round worm infestation.

Objective: We conducted this retrospective study based on literature review available over the mid 2000 using the search key biliary Ascariasis, Biliary colic, Acute cholecystitis, obstructive jaundice, cholangitis, pancreatitis, hepatolithiasis, liver abscess. The search engine used was: Pubmed, Google Schoalr, HINARI, Embase and Scopus. We searched literature published from both endemic and non endemic area and aimed to study different types of clinical presentation, diagnostic tool, complications and their frequency and various treatment option for the management of biliary ascariasis.

Result: Biliary colic is the commonest symptom. Acute cholecystitis, obstructive jaundice, cholangitis, pancreatitis, hepatolithiasis, liver abscess are other mode of presentation. Ultrasonography was reported to be an excellent non –invasive investigation for proper diagnosis and follows up in such conditions. Majority of cases are treated conservatively. ERCP (Endoscopic Retrograde Cholangio Pancreatography) based extraction of Ascaris lubricoids is possible in most of the situation where expert endoscopy services are available.

Conclusion: Open common bile duct exploration and removal of worm is necessary in absence of endoscopy .Improvement of personal hygiene, improvement of sanitation and regular anti-helminthic administration can reduce these dreadful consequences of infestation by worms.

Key words: Biliary ascariasis, Endoscopic Retrograde Cholangio Pancreatography, Common bile duct exploration.

Introduction

Ascaris lumbricoides, a nematode, is the causative agent of ascariasis. It is the most common helminthic infestation in the world. Ascaris infestations are prevalent mainly in developing countries. People from lower socioeconomic group living in poor hygienic condition in rural areas are victim of this condition.

Adult worm normally lives in small intestine. They love to wander and tend to explore ducts and cavities. The adult worm often enters bile and pancreatic duct and cause obstruction to the flow of bile or pancreatic juice. After gall stone, biliary ascariasis is the second most common cause of acute biliary symptom worldwide.[1] Female and children are mostly affected. Acute upper abdominal colic is the commonest symptom. In endemic areas biliary ascariasis is a frequent diagnosis and should be kept in mind for acute upper abdominal pain. Mainstay of diagnosis is ultrasonography. Most of the patient can be managed conservatively. Failure of conservative treatment will require worm extraction by ERCP or common bile duct exploration.

1. *Professor and Head, Department of Surgery, Ad-din Women's Medical college (AWMCH)
2. Professor and Head , Department of Radiology, Jahurul Islam Medical College & hospital, (JIMCH)
3. Registrar, Department of Accident & Emergency, AWMCH
4. Registrar, Department of Surgery, Ad-din Women's Medical College Hospital (AWMCH)
5. Assistant Professor, Department of Surgery, AWMCH

Correspondence: Dr. Sardar Rezaul Islam, Professor and Head, Department of Surgery, Ad-din Women's Medical college (AWMCH)

Received Date : 20 October, 2022

Accepted Date : 07 November, 2022

Presentation of biliary ascariasis in various studies Table-1, Source [2]

Presentation /Complication	Percentage
Abdominal or biliary colic	97%
Acute cholangitis	15.5%
Obstructive jaundice	9%
Acute pancreatitis	6.5%
Choledocholithiasis	6.5%
Acute cholecystitis	6.5%
Liver abscess	2.5%

Table -2: Source[1].

Presentation /Complication	Percentage
Abdominal or biliary colic	95%
H/O cholecystectomy	80%
H/O Sphincterotomy	77%
Acute cholangitis	17%
Obstructive jaundice	28%
Acute Pancreatitis	2.5%
Hepatic abscess	2.5%

Table-3: Source[3]

Presentation /Complication	Percentage
Abdominal or biliary colic	80%
Cholecystitis	30%
Obstructive jaundice	25%
Acute cholangitis	5%
Acute Pancreatitis	5%
Hepatic abscess	5%

Table-4: source[10]

Presentation /Complication	Percentage
Abdominal or biliary colic	98%
H/O cholecystectomy	80%
H/O Sphincterotomy	77%
H/O Worm emesis	25%
Obstructive jaundice	1.3%
Cholangitis	16%
Pancreatitis	4.3%

Diagnosis

All patients with suspected biliary ascariasis are assessed with CBC, liver function tests, serum amylase, X-ray chest and abdomen and ultrasonography of the hepatobiliary system. Ultrasonography should be repeated to assess the progress of the worm, whether it has passed out of the biliary tract or migrated upwards. The mainstay of diagnosis is ultrasonography.[4] It has a very high accuracy for diagnosis and follows up of worm in the biliary tract. Various appearances of the worm has been described on ultrasonography. They are as follows:-

1) Inner tube sign- The worm may be seen as thick echogenic stripe with a central anechoic tube in the Gall bladder or common bile duct. (Fig-1)

2) Stripe sign-Thin non shadowing stripe without and inner tube within the biliary tract. (Fig-2)

3) Spaghetti sign-Multiple long linear overlapping echogenic structure due to coiling of a single worm or multiple worms.

4) Mobile structure-The sonography may demonstrate mobility of the worm in the gall bladder or the biliary channel and unequivocally establishing the diagnosis.[4,5]

5) Amorphous appearance- Degraded worm may appear as amorphous, echogenic filling defect making the diagnosis difficult.

6) Dilated intra and extrahepatic ducts will be present with any of the above mentioned feature.

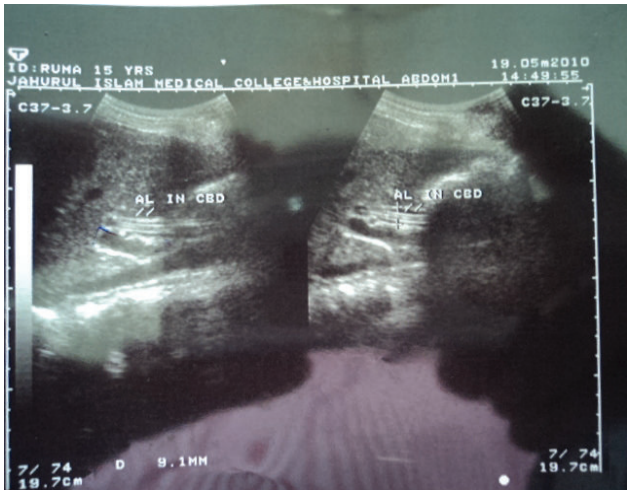


Fig.-1: Inner tube sign on USG

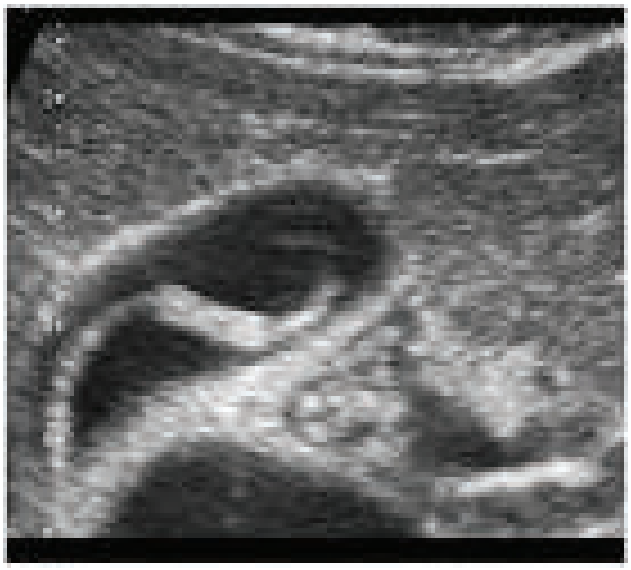


Fig.-2: Stripe sign

Treatment

All patients are initially managed conservatively with intravenous fluid, antibiotics, analgesic and antispasmodic medication. Patients are followed by repeated ultrasound to monitor the progress of the worm. Majority of patients respond to this conservative therapy.

Failed conservative treatment should have worm extraction by ERCP if available or by open choledochotomy. In case of associated inflamed gall bladder cholecystectomy should also be done. Liver abscess or perforation of hollow viscus will require surgical exploration.

All patients should be de-wormed with 400 mg Albendazol repeated every 6 months.

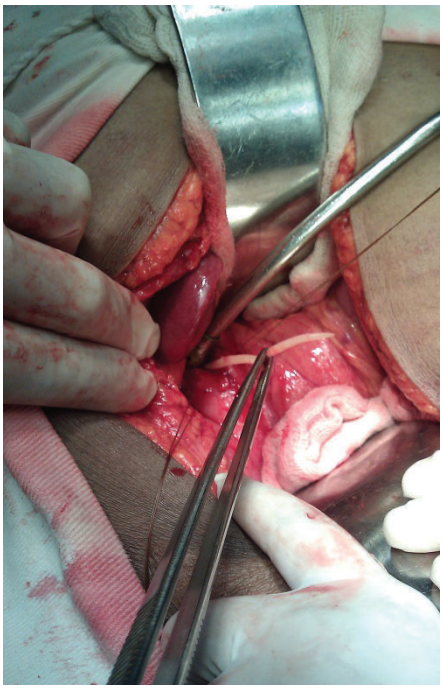


Fig.-3: Extraction of AL by Choledochotomy

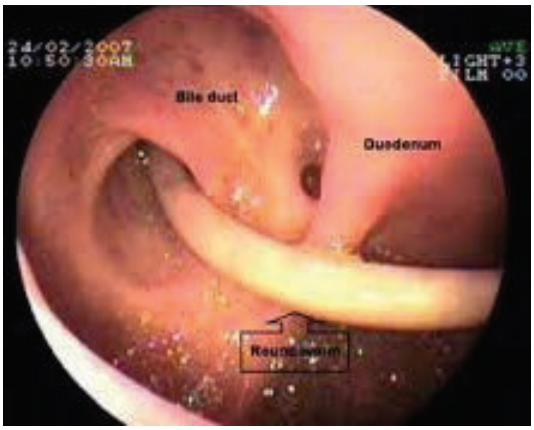


Fig.-4: ERCP view of biliary ascariasis

Discussion

Biliary ascariasis is commonly reported from Far-east, Indian subcontinent, Middle East, Latin America and Africa. In human the usual habitat is small intestine. When the worm load is high the worm tends to migrate out of the usual site of their habitat and tends to enter ducts and cavities.[1]

Symptoms of biliary colic occur when the worm migrates across the papilla in the duodenum. The worm may remain in the bile duct, may reach the gall bladder or even reach the hepatic parenchyma. As soon as it enters the bile duct colicky pain starts. If it stays in the biliary tract further complication may occur. Common complications noted in different series are cholangitis, stricture, calculi, cholecystitis, perforation of the CBD or gall bladder, [6] pancreatitis and liver abscess.

Women are 4 to 6 time more affected than men. The reason behind the preponderance of female population is not exactly known. Young and middle aged female possess high level of progesterone hormone. One of the actions of progesterone is relaxation of smooth muscle. Relaxation of smooth muscle of sphincter of Oddi allows worms to gain easy entrance into the common bile duct.[11] recurrent duct invasion has been observed in the endemic region. Re-invasion rate has been found to be about 15%. Previous surgery of the biliary tract predisposes to biliary ascariasis. Cases are reported after sphincterotomy and Roux-en-Y hepatico-jejunostomy.[7] Prior cholecystectomy also predisposes to bile duct invasion by ascariasis. After cholecystectomy common bile duct and other biliary ducts get dilated. Rise in the level of cholecystokinin leads to relaxation of sphincter of Oddi. All these factors help entry of ascaris into the biliary tree.[8]

For diagnosis of biliary ascariasis ultrasound was described to have very high accuracy in most of the series. It is an excellent tool for monitoring progress of the worm in the biliary tree. Its accuracy was found to be around 100% in various series. ERCP has both diagnostic and therapeutic value.

Most of the series described high success of conservative treatment. Its reported efficacy ranges between 70 to 90%.[3,9] All patients should be monitored by serial ultrasonography. Mostly patients improve on the conservative treatment within 4-5 days. Conservative treatment should not be continued for more than 10 days. Otherwise retained and degraded worms may lead to dreadful complication like CBD perforation, gall

bladder perforation, cholangitis, liver abscess, which are difficult to manage.[6] If facility for endoscopic extraction is available therapeutic intervention should be done earlier. Mobbing Khan et al and Annand BS et al demonstrated high success rate with wide papillotomy and endoscopic extraction in their series. They were successful in extraction of worm from the biliary tract around 95% of cases. They did not experience any major complication during or following the procedure.[2, 10, 11] Unavailability of ERCP will require surgical exploration of CBD and removal of the worm. Most of the surgeons likes to put T-tube drainage after CBD exploration. In my experience a much dilated CBD can be closed primarily without T-tube drainage. Associated complication like liver abscess or cholecystitis can be dealt with at the time of surgical exploration.

Conclusion

In endemic areas biliary ascariasis should be suspected in female and young patients with upper abdominal pain. Ultrasound should be done for evaluation and follow up. Though majority of patients improve on conservative management, early intervention by ERCP should be done, if facility is available. Conservative treatment should be abandoned in favor of surgery if worm does not come out of the biliary tract within 10 days. All patients must have regular de-worming as re-invasion rate is also very high in endemic area.

References

1. Madhumita Mukhopadhaya, Biliary ascariasis in the Indian Sub-continent-a study of 42 cases. The Saudi Journal of Gastroenterology 2009; 15(2) P-12-124.
2. Alam S, Mustafa G, Ahmed N, Khan M, Biliary Ascariasis; South Asian J Tropical Medicine and Public Health 2007; 38(4). 631-635.
3. Chowdhury SY, Kaiser MS, Varied presentation of biliary ascariasis and its consequences. Mymenshing Medical College Journal. 2006 Jul; 15(2) P- 150-152.
4. Mani S, Merchant H, Sachdev R, Ranavare R, Chunha N, Sonographic evaluation of biliary ascariasis Australas Radiol 1997; 41, P-204-204
5. Ashiana Garg,m Vijay Hanchate, Soni Chawala, Preeti Sing, Biliary ascarasis-Applied Radiology 2006; 31(12)
6. Wani MY, Ahmed Bashir, Wani AN, Pandita S, J I ndian Association of Paediatric surgeon 2005; 10, P-86- 88
7. Braga LH, Tatsuo ES, Guimaryes JT, Miranda mE, Paxio RM, Teixiera CR et al Biliary ascariasis after Roux Y –hepatico jejunostomy. J of pediatric surgery 2000; 35, p-1394-5.
8. Omer Javed Shah, Manzoor Ahmed Dar, Nazir Ahmed Wani, Irfan Rabbani, Showkat A Zragar. Biliary ascariasis as cause of post cholecystectomy in an endemic area. Digestive surgery, 2004; 21(2).
9. K shivkumar, Sam Varkey, Mathan P Georges, S Rajudran, R Hema. Journal of Indian Association of Pediatric Surgeon. 2007; 12(2), P-85-88.
10. Sadouk F , Haffar S, Zadda MM, Graham DY, Ahmed BS, Pancreatic and Biliary Ascariasis. Experience of 300 cases. Am J of Gastroenterology? 1997; 92(5), 2264-7.
11. SP Misra, Manish Dwivedi, Clinical feature and management of biliary ascariasis in non-endemic area. Postgraduate Medical J 2000. 76, p 29-32.

Review Article

An Updated Review on Post Dissection Complications in Neck

*Md. Hasan Hafijur Rahman[1], Mansur Alam[2], Md. Mahmudul Hasan Khan[3], Jarin Tasnim Stella[4], Umama-Binte-Delwar[5], Najiba Kabir [6]

Abstract

Incidence of oral & laryngeal cancer in Bangladesh is increasing day by day. Neck dissection is the most commonly performed operation in any tertiary level hospital that has Head and Neck surgery and Oncology setup. Metastatic dissemination to lymph nodes of neck occurs frequently in head neck cancers which down grade the patient's curability, shorten 5 years survival and responsible for recurrent disease. To assess complications following different types of neck dissection this cross sectional study was conducted among patients who underwent different types of neck dissection due to cervical nodal metastasis and attended follow up. Common **Immediate complications** were hemorrhage 02 (3.33%), facial oedema 02(3.33%) and thoracic duct injury 02(3.33%). **Intermediate complications** were seroma (6.67%), wound infection 04 (6.67%) and chylous fistula02 (3.33%). **Late Complications** were hypertrophic scar 02 (3.33%) and shoulder syndrome 04(6.67%). There were no perioperative deaths. Incidence of complication can be reduced by skilled surgery, proper indications, proper identification of anatomical planes along with early recognition and treatment.

Introduction

The history of post neck dissection complications and squeal continuing quest to reduce. Since its original description by Crile in 1906 and subsequent popularization by Hays Martin in 1951, the Radical Neck Dissection (RND) remained the standard treatment for palpable or potential cervical metastasis in head and neck cancers. Though it provided a reliable method of treating patients with head and neck cancer, it became increasingly apparent that it carried substantial morbidity, which led to development of modified procedures that attempted to reduce the adverse effects of the classical operation and yet preserve its effectiveness in oncological terms.

1. *Registrar, BIHS General Hospital, Dhaka
2. Combined Military Hospital (CMH), Dhaka
3. Associate Professor, Ad-din Women's Medical College, Dhaka
4. Lecturer, Ad-din Women's Medical College, Dhaka
5. Medical Officer (ENT), Ad-din Women's Medical College, Dhaka

Correspondence: Md. Hasan Hafijur Rahman, Registrar, BIHS General Hospital, Dhaka

Received Date : 10 August, 2022
Accepted Date : 20 October, 2022

As neck dissection surgical techniques have evolved, so have the type and frequency of complications. Due to intricate anatomy and presence of various nerves, vessels and lymphatic channels, neck dissections are particularly prone to various complications.

These complications in addition to prolonging hospital stay result in expensive and time-consuming management, thus increasing overall burden on hospital resources and patient's pocket. Despite being most commonly performed procedure in any head and neck unit, exact incidence of various neurovascular complications and functional morbidities associated with neck dissection have been studied less especially in Indian subcontinent. With this in view, current study was undertaken and patients were studied prospectively for various short-term and long-term neurovascular complications following neck dissection

History of Neck Dissection:

The neck dissection procedures performed today are the result of many years of refinements and modifications of the first description in the English language by Crile in 1906.

The history of neck dissection is fascinating and several historical figures mark the rationale of neck

dissection in its present form. Concepts of cervical lymph node metastases and the incurability of the disease dawned on surgeons in the mid-nineteenth century with publications as early as 1847 by Joseph von Chelius.[2,15]

In 1880, Theodor Kocher introduced the Y-shaped incision which is still in use today, thus allowing for wide resection of lymph node metastases Subsequently, in 1951,[16] Hayes Martin from Memorial Hospital New York, popularized the radical neck dissection with a step-wise description of the technique. A decade later, in 1963, the Argentinian Osvaldo Suarez,[5] introduced the first systematic approach to functional neck dissection (FND).

Due to new insights into lymph drainage pathways, other modifications were also developed during the 1960s, by Shah JP such as the modified radical neck dissection (MRND) and selective neck dissection (SND).[7] Increasing knowledge of the topographical distribution of metastatic lymph nodes with various primary sites permitted evolution of less radical techniques. Reported by stell.[9]

In these techniques, selective lymph node groups that have the highest risk of containing metastases are removed and they are mainly associated with names such as Richard Jesse[8], Alando Ballantyne and Robert Byers from Houston Neck dissection procedure has some complications and avoiding the complications and ensuring better prognosis as well as disease free survival is of utmost importance.

History of Neck dissection Neck dissection or cervical lymphadenectomy is a systemic removal of the lymph nodes and lymph bearing structures including the surrounding fibro fatty tissue from various compartments of the neck. In 1847 Warren first attempted to remove metastatic cancer in the neck.

In 1880[3] Kocher described the resection of tongue combined with removal of regional lymphatic via submandibular approach. In 1906 George[1] Crile gave the first description of the standardized anatomic dissection of the cervical lymphatics.[11] In 1951 Hayes martin[4,12] advocated radical neck dissection as the only acceptable procedure for cervical lymph node metastases. In 1966 Bocca of Italy and Ballantine of USA advocated functional neck dissection. They were supported by Dignataro and Jesse. In 1972 Lindberg[6] advocated selective neck dissection. In 1994 Spirostrong and Shah[7] advocated limited neck dissection. George Crile described his experience with 1321 operations and advised removal of the lymph nodes in the neck along with the sternocleidomastoid muscle, internal jugular vein and spinal accessory nerve and he essentially standardized the technique of radical neck dissection. The inevitable morbidity to which this bed fuelled an interest in more conservative approaches and during the 1980s and 1990s a number of less radical procedures have been popularized based on the staging of the dissection presentation.

Specific types of Neck dissection and its importance

The neck dissections has been divided into following categories –

(a) **Radical Neck dissection:** Removal of the lymph node containing levels in the neck (I-V) and Three non-lymphatic structures- spinal accessory nerve, internal jugular vein and sternocleidomastoid muscle.

(b) **Modified radical neck dissection**: This operation consists of removal of all lymph nodes groups (levels I-V) with preservation of one or more non lymphatic structures .Type 1 modified radical neck dissection preserves the spinal accessory nerve, type 2 preserves not only the spinal accessory nerve but also the internal jugular vein and a type 3 dissection is when the spinal accessory nerve, the internal jugular vein and the sternomastoid muscle are all preserved. This latter operation (type 3 modified radical neck dissection) is also known as a comprehensive or functional neck dissection.

(c) **Extended radical neck dissection**: Consists of removal of all of the structures resected in a radical neck dissection along with one or more additional lymph node groups or non-lymphatic structures or both. The additional lymph nodes group includes retropharyngeal lymph node, parotid nodes or lymph nodes in level (VI) or (VII). The non lymphatic structures that may be removed included part or all of the mandible, the parotid gland, part of mastoid tip, prevertebral fascia & musculature, the digastric muscle ,the hypoglossal nerve and the external carotid artery & skin.

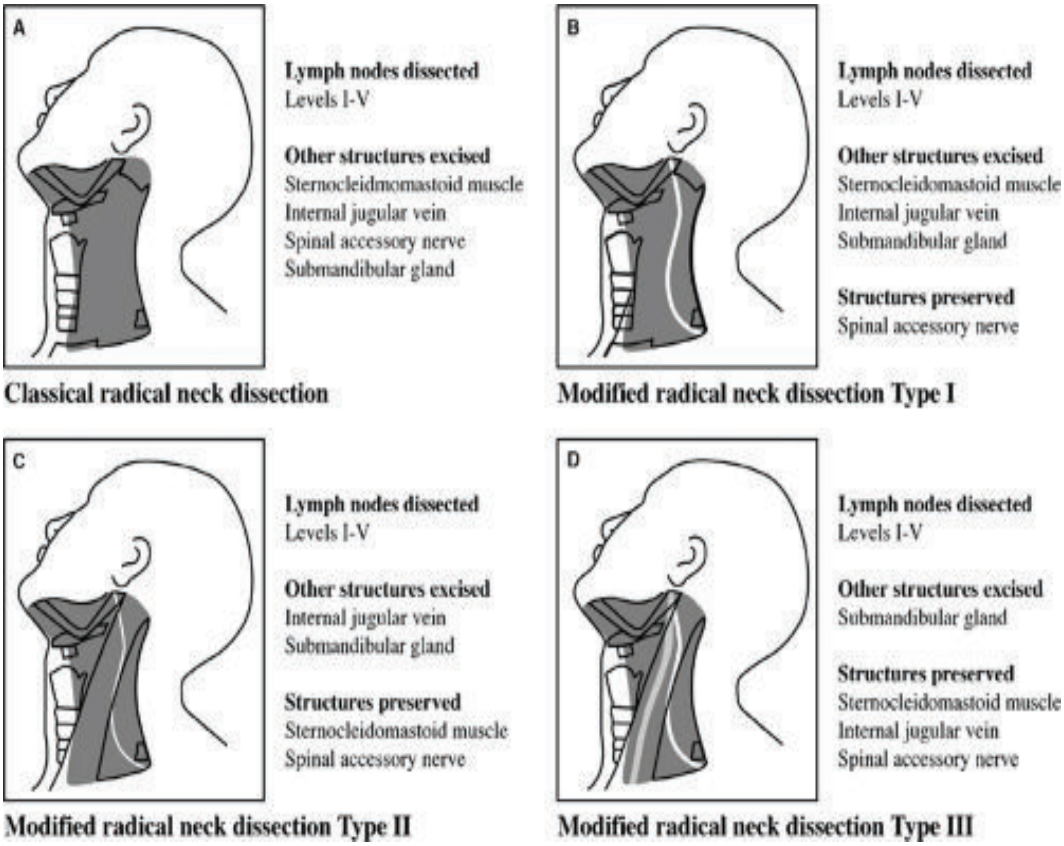


Fig-1: Types of Neck Dissection

Fig.-1: Shows the following characteristics- (a) Classical Radical neck dissection which includes excision of I-V Lymphodes and all important non lymphatic structures. (b) Preservation of spinal accessory nerves (c) Preservation of sternocleido mastoid muscles along with spinal accessory nerves (d) Preservation of sternocleido mastoid muscle, internal jugular vein and spinal accessory nerves

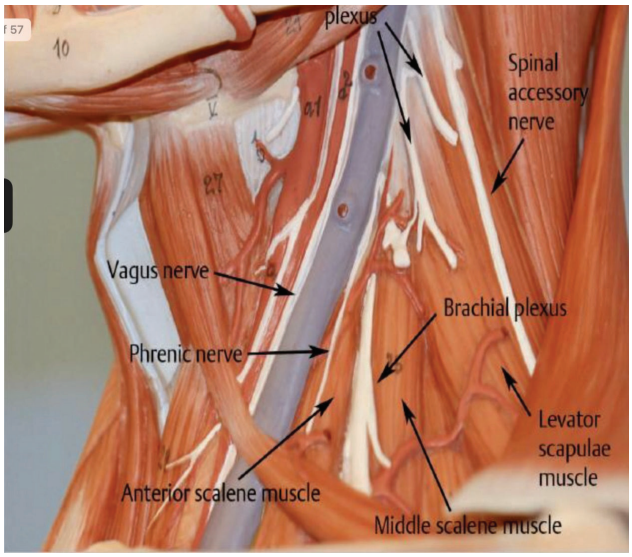


Fig-2: *Major Structures of Neck Dissection*

Fig-2 shows that identification of significant structures during neck dissection.

Discussion

Metastatic dissemination into the lymph nodes of the neck occurs frequently in cancers of the upper aero digestive tract. More than 50% of patients with identified primary cancers of the head and neck present with obvious metastasis to cervical lymph nodes. The cervical lymphatic plays an active role in the biologic behavior of cancers of the head and neck. The status of neck lymph nodes remains the single most important prognostic factor.

Management of cervical metastatic disease depends on primary site of malignancy and different type of treatment plan (radiotherapy, chemotherapy, adjuvant therapy). Leaving cancer in the cervical nodes, whether or not clinically apparent, inevitably results in unacceptable morbidity and mortality for the patient. There is no treatment more effective for neck metastases than surgery. The choice of treatment of the neck depends on the site and stage of the primary cancer, the

probability of occult metastases, the treatment modality selected for the primary cancer, and the desires of the patient. Neck dissection of different modalities and techniques are the surgical mode of treatment, from selective neck dissection to extended radical neck dissections, form a major part in the management of neck metastases.

Selection of the appropriate surgical procedure for the management of the cervical nodes in a particular patient is based on multiple factors, including the primary site of the cancer, patient status, prior therapy, and treatment goals. Morbidity following different neck dissection e.g. disfigurement, sensory changes, shoulder pain, reduced strength of the trapezius muscle, reduced range of motion of the shoulder, disability in activities of daily life, and even loss of work are common.

Out of 60 cases of neck dissection 50 (83.33%) were male and 10 (16.67%) were female. As the most of the head-neck carcinoma.[17,21] in our country has been found among male persons, this result corresponds with the other previous studies .Age of the patients ranges from 31-72 years, Mean = 59.1 +_ 5.44. The most of the cases were carcinoma of upper aero digestive tract with neck node, which is common in older age group

In other study shown that head-neck carcinoma is more prevalent among the older age group. Most of them were within 5th& 6th decade. The primary site distribution of the patient with neck dissection were occult primary24 (40%), Thyroid origin 18 (30%), Maxilla 02 (3 33%), Hypopharynx 01006 (10.00%), Larynx 08 (13.33%), Nasopharynx 02 (3 33%). Head and neck cancers spread to the lymph nodes of the neck, and this is often the first (and sometimes only) sign of the disease at the time of diagnosis. In this study stage of the neck nodes in patient with neck dissection were N1 02 (3.33%), N2A 08 (13.33%), N2B 22 (36.66%), N2C (6.66%) N3 24 (40%).

Most of the metastatic neck nodes were multiple and size around 3-5 cm in diameter, which were grouped as N2B. Metastatic neck nodes were found level-I 02 (3.33%) level - II 8 (13%) level-III in 22 (36.66%) level IV- 4 (6.66%) 18 (30%) level V 02 (3.33%) VI 02 (3.33%). 90% of head and neck cancers are squamous cell carcinomas (SCC), originating from the mucosal lining (epithelium) of these regions.

As Janes Reported.[14] For all types of SCC, the presence of invasion is diagnostic of a malignancy. The clinical (gross) appearance of invasive SCC is quite variable and includes ulcerated, flat, exophytic, verrucoid, or papillary growths. The histologic appearance of invasive SCC may be as variable as the gross appearance without specific correlation between the gross appearance and the histopathologic findings. Invasive SCC of the upper aero digestive tract includes keratinizing and non-keratinizing carcinomas varying from well to poorly differentiated carcinoma.

In this study there were different types at neck dissection has been undergone such as radical neck dissection[19] were 10 (16.67%), modified radical neck dissection were 22 (36.67), selective neck dissection were 24 (40%) and extended radical neck dissection were 04 (6.67%).

Although neck dissection is a technically well-established procedure, complications still occur. Intra operative events, such as hemorrhage, loss of a venous suture resulting in air embolism, chylous leakage due to thoracic duct injury, and arrhythmia .

Because of carotid bulb manipulation, are habitually promptly managed; these events may, however, be disastrous for the patient. The surgical wound infection rate was low; preventive antibiotic therapy was given in the preceding 24 hours to surgery. Extensive vascularization of the neck and the uncontaminated nature of the neck surgical field explain this low rate of infection. Factors favoring infection are contamination of the neck when laryngectomy or tracheostomy is done; previous radiotherapy, however, had no negative impact. Chylous leakage is rare; it occurs in 1to 25% of neck dissection, mostly in the left side.

In this study **immediate complication** were excessive bleeding 02 (3 33%), facial oedema 02(3.33%0) and thoracic duct injury 02(6.67%). **Intermediate complications** were chylous fistula 02(3.33%), seroma 04 (6.67%), wound dehiscence 02 (3.33%), wound infection 04 (6.67%) and flap haematoma 02 (3.33%).

Late Complications were hypertrophic scar 02(3.33%), shoulder syndrome 04 (6.67%), lymph edema 04 (6,67%) and parotid tail hypertrophy 02 (3_33%). The vagus nerve may be injured when the internal jugular vein is ligated during radical neck dissection .If dissection below the ganglion, it results in vocal fold paralysis; if above, there is also dysphagia and aspiration.

This complication is rare, no case was encountered in our series. Phrenic nerve injury is uncommon; it often goes unnoticed, and may result in atelectasis and lung infiltrates .We found no cases of phrenic nerve injury. Accessory nerve injury is not uncommon even when the

accessory nerve is preserved. It is due to skeletonized (and therefore devascularized), which may result in the painful shoulder syndrome and mild to moderate shoulder dysfunction, these affect the patient's quality of iife. The Bernard-Honer syndrome or oculosympathetic paresis (blepharoptosis, enophthalmos and miosis) is caused by injury of the cervical sympathetic nerve. This nerve is located posterior to and under the carotid sheath, and may be injured during radical neck dissection; this was not encounter in our series.

References:

1. Crile GW. Excision of cancer in the head and neck. With special reference to the plan of dissection based on one hundred and thirty-two operations. Journal of the American Medical Association 1906; 47: 1780-6.
2. Chelius JM. A system of surgery, vol. lll Philadelphia: Lea and Blanchard, 1847: 515.
3. Kocher T. Ueber Radicalheilung des Krebses Deutsche Zeitschriftfu-rChirurgie1880; 13: 134-66
4. Martin H, Del Valle B, Ehrlich H, Cahan WG. Neck dissection. Cancer 1951; 4: 441-99.
5. Sua'rez 0. El problema de las metastasis linfa'ticas y alejadasdelca'ncer de laringe e hipofaringe. Revue de Otorrinolaringologia 1963; 23: 83-99_
6. Lindberg R. Distribution of cervical lymph node metastases from squamous cell carcinoma of the upper aero digestive tracts, Cancer 1972; 29: 1446-9.
7. Shah JP, Anderson PE. The impact of patterns of neck metastasis on modifications of neck dissection. Annals of Surgery and Oncology 1994; 1: 521-32.
8. Jesse RH, Ballantyne AJ, Larson D. Radical or modified neck dissection: a therapeutic dilemma. American Journal of Surgery 1978; 136.516-19.
9. Stell P M, Dalby J E,Singh S D,TaylorW.The fixed cervical lymph node cancer.1984; 53:336-341.
10. Lawrence E,Banister H et al. Lymphatic drainage of head and Neck ln:Grays Anatorny,38th edition, ELBS, Churchil Livingstone,1995;1611-13.
11. BasmajjanJV.Lymphatics of Head and Neck.ln:Gray's Anatomy:10th edition,London,Williams and Wilkins,Baltimore.1980;542-6.
12. Martin H,RomieuC, Cervical lymph node metastasis cancer_SurgGynecol Obstet.1995
13. Jesse RH,Pere Z CA,FletercherGH.Cervical lymph node metastasis.Etiology of unknown primary_ 1999; 31:854.
14. Jones AS.Squamous carcinoma presenting as an enlarged cervical node.2003:72:1748,
15. Chelius JM. A system of surgery, vol. lll. Philadelphia: Lea and Blanchard , 1847: 515.
16. Martin H, Del Valle B, Ehrlich H, Cahan WG. Neck dissection.Cancer 1951; 4: 441-99.
17. Watkinscn John C, Gilbert Ralph W.Stell and Maran's Textbook of Head and Neck Surgery and Oncology, Hodder Arnold:5th ed.Neck Dissection.2012;699.
18. Gleeson M, Scott-Brown's Otorhinolaryngology, Head and Neck Surgery, Hodder Arnold: 7th ed. 2008; 2711-2750.
19. Hossain I A H.Cervical lymphadenopathy-A clinico-pathologicalstudy of 100 cases.(Dissertation BCPS) 2000. 22.M k Masud,Complication of neck dissection at a Tertiary level Hospital- A study of 30 cases. Mymensingh Medical college 2014.

Letter to the Editor

My Experience as a Dental Surgeon (internee) on a Medical and Dental Campaign in Ashuganj, Bhairob and Brambhanbaria

Meher Afroz Moomu

Dear Editor,

I am a dentist doing my intern at the Kumudini Hospital, where I am to perform a wide range of dental, maxillofacial and orthodontics surgeries. But, here I am sharing one of my great experiences on one of our recently held field visit a (medical and dental health campaign) in Ashuganj, Bhairob and Brambhanbaria where we served the grass-root level rural inhabitants as dental surgeons. Here I am sharing some of the major observations that we had during that important dental campaign.

To start with, let me introduce with the geographic features and topography of Bhairob-a riverine area being wet and dumpy where monsoon flood remains a common scenario. Since most of its population lives in low-lying land being so nomadic, so during flood they suffer to much particularly the women and children. The air gets very dry and dusty with a little variation.

I. **Disease Profile:** Now, to take about the medical/ dental campaign, we clinically checked ~500 patients who attended our campaign from far and near areas. They had been suffering from the following common diseases.

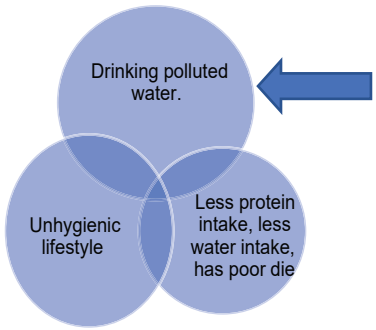
Table-I

Suffering from following common disease

Diseases	Percentage
common cold	Children -30%
allergic rhinitis	Children -45%)
pulmonary tb	only in 2 cases
skin disease	≥ 60% kids.
fungal infections	Girls (25%)
UTI	Females (34%) than males (12%)
arthritis and other kind of joint pain	Female (22%) than male (9%).
Malnutrition predominantly among maternal and child population, Tooth decay and other dental problems like caries gingivitis	Adolescent boys (20%) and girls (30%) 60% in male.

Below remain my observations as a doctor (public health dentist) on the overall scenario (Food, Environment, society, Health Care Services):

II. Socio-Environmental Scenario in Ashuganj:



III. Health Care Behavior

- Mostly they don't go to the hospital except any emergency due to poverty since they cannot afford to bear the medical expenses out of pocket (OOP),

Correspondence: Dr. Meher Afroz Moomu, Intern Doctor, Kumudini Hospital, Mirzapur, Tangail

Received Date : 10 September, 2022
Accepted Date : 10 December, 2022

they cannot afford nutritious food, they cannot meet up the transport cost to go to doctor/hospital from their residence (distance barrier and social economic status factor).

- Most of them believe in self-medication by procuration simple medicine from nearer as inform their health problems to the pharmacy person and ask for medicine saying, "give me some painkillers/give me cold medicine/ give me anti-itching medicine" etc.-which the pharmacist (Not degree holder-quack).
- With such lay man treatment; though they get relief for few days but the problem either persists longer or revers back and reinfection occur when they go back to the pharmacist again to purchase the same drug again and again and again and that's how the infection goes on and on throughout!
- Finally these people get seriously sick when the infection/inflammation starts spreading largely and they become sicker when they have increased pain and weakness. Only after that when the disease gets aggravated they go to the union hospital for treatment, at the best, even though there is no good doctor or letter clinical treatment, ever.
- So, in my opinion poverty remains the main cause of their health issues. Even if they go to the hospital they cannot get better treatment since they don't have the money to bear the cost of medical expenses, and, thus, they give up gradually and mentally gets prepare to accept the death ultimately.

IV. My Final Observation Based Findings as a Dental Surgeon:

- Among these 500 people, that we checked almost all remained blind on their oral hygiene and dental health. They don't know how to brush their teeth properly and even more than 70% people had no toothbrush or paste to keep their teeth clean. They used to rub with charcoal and tree branches for cleaning and brushing teeth which was mostly prevalent among the elderly ones.
- On oral examination, we found calculus, stains, carries on their tooth, along with gringistis, glossitis etc.
- And, some of them were having severe dental carries, inflammation and swelling of upper and lower jaws, including abscess.
- More dangerous is: they only come to visit a dentist when they got severe toothache and when can't eat and sleep.
- Even after the diagnosis of their dental problem, most of them denied treatment or medications only owing to poor socio-economic conditions. However, most of them ask for a doctor for tooth extraction and/or abscess drainage only yet in cheap cost but just to relief pain and other complication.
- Another important issue is there was no certified dentist's chamber or recognized dental hospital in those areas that we surveyed. So, rural people do not get any proper dental treatment here and they don't want to go to the recognized degree holder dentist for proper treatment, too.

V. My Final Countdown on This Field Health Care Campaign:

I asked my supervisors or senior ones in the following hunches/queries:

1. Does water can be the major factor of their tooth decay/dental problem or other skin disease, or joint problem in those rural areas?
2. If yes, what preventive measures should they take in such a riverine area so that the health of these rural people do not suffer more or get worsened or reversed?
3. It is not clear to me why the dental surgeons do not practice in these rural areas where there are so many patients suffering from a wide range of dental problems.

VI. Outcome:

1. Poverty remains the worst cause in these rural riverine villages that bars them seeking for health care services, even at the Govt. hospital for a way no cost.
2. As an intern dentist, I think poverty remains the burning issues among these rural inhabitants, which bars them in leading a fair healthy and a peaceful life.
3. The Govt. Organs (Health, Family Welfare, Nutrition, PH Eng., R & H division for managing good roads to improve their day to day essential transportations, particularly to bear patients to the hospital (>7km away).

VII. Conclusion:

We, the doctors particularly those who are dental surgeons must dedicate themselves towards practicing in any community based clinic/hospitals towards providing due attention and adequate time for assisting these patients at the rural areas so that they can get proper dental treatment and other health care. The Govt. health care facilities must be been towards establishing prudent systems to help the vast majority rural inhabitants in getting better health care service delivery systems.

News and Views

5th Young Scientists Congress Secretariat, Bangladesh Academy of Sciences (BAS)National Science and Technology, at 25-27 November 2022, attended 2022, Complex, Agargaon, Dhaka, Bangladesh

Abstract

BETTER CLIENTS SATISFACTION REVEALED WITH NUTRITION SERVICE DELIVERED BY PRIVATE/NGO RUN PRIMARY HEALTH CARE FACILITIES COMPARED TO THAT OF GOB-RUN HEALTH CARE FACILITIES IN URBAN AREAS IN BANGLADESH.

Author: **Faugia Islam Anne, Sabrina Rasheed, Syeda Mahsina Akhter, Santhia Ireen, Kristen Kappos**

Background: Nutrition service was mainstreamed into maternal, neonatal and child health (MNCH) services from 2010 under the leadership of GoB run National Nutrition Services (NNS). However, since inception, certain lacks & gaps that prevailed in transferring knowledge on client satisfactions in terms of nutrition service delivery were improved in health care facilities in urban Dhaka in private sector.

Objectives: Client satisfaction on nutrition service delivery was assessed in the study areas.

Method: This cross-sectional study was conducted in April-July 2019 in Dhaka City. Thirty-three health facilities were randomly sampled, of them 11 from each category of public, private and NGO health facilities. Client's satisfaction was assessed utilizing exit interviews with pregnant women (n=165) and caregivers of 0-24 month-old children (n=162) in out-patient care in urban primary care health facilities. Linear regression was employed to identify factors (age, gestational age of pregnant women, type of health facility, reason for using health facility and number of nutrition service received) were associated with overall satisfaction among respondents. Data were analyzed using SPSS version 25.

Results: The mean satisfaction with service delivered was 4.3 for ANC visits and 4.0 for Pediatric visits (range 1-5). During ANC visit, client satisfaction was significantly associated with the number of nutrition services received (p=0.001). Participants had significantly lower satisfaction who attended public health facilities compared to those in private and NGO health facilities.

Conclusion: The clients were more satisfied with services at private facilities compared to public health facilities. Client satisfaction in health facilities can be improved by promotion of quality nutrition counseling in health facilities. Despite of higher score of satisfaction among users, there are gaps in terms of quality of waiting area and waiting time, especially for public facilities, which needs to be improved so that mothers can avail nutrition services in comfort and are motivated to use the facilities.

Keywords: Health facilities, nutrition services, satisfaction, quality, urban

Abstract

MAJOR DETERMINANTS OF POOR BONE MINERAL DENSITY AMONG BANGLADESHI ADULT POPULATION IN AN URBAN HOSPITAL

Author: ***Nila Akter Keya[1],** Tania Ferdoushy[2], Dr. Shamim Momtaz Ferdousi Begum[3], Ms Quamrun Nahar[4]

Background and Objectives: Osteoporosis is a progressive bone degenerative leading to disease bones becoming weaker and brittle. It not only causes long term morbidity but also strikingly decline quality of life (QOL) of victim. Among different developing countries, the prevalence rate of osteoporosis remains alarming in the face of poor management and grows awareness on its risk factors. Several chronic medical conditions, medications, and life style factors affect bone mineral density. An effective way to prevent osteoporosis to measure bone mineral density (BMD), determine major risk factors to be associated with osteoporosis and lack of consciousness about bone health. We, therefore, tried to define association of gender specific QOL with BMD as major risk factor to develop osteoporosis.

Methods: This cross-sectionally designed retrospective study was undertaken from the Scintigraphy Division of National Institute of Nuclear Medicine and Allied Sciences (NINMAS), Bangabandhu Sheikh Mujib Medical University (BSMMU) in late 2018. Of total 50 patients, attending at the radiology department at BSMMU for Dual-emission X-ray absorptiometry (DXA) scan, were studied. All the relevant data was collected through questionnaires and lab/X-ray report. Data analysis was undertaken by using SPSS version 16.

Results: Our findings revealed 26% had normal BMD while 34% had osteopenia and 40% osteoporosis; the female's being higher 40 (80%) than the male counterpart 10 (20%). Drinking tea (p<0.04), doing exercise (p<0.02), exposure to sun (p<0.06), wearing a hijab (p<0.04) were positively correlated with BMD.

Conclusions: We found that females are most likely to be at risk of osteoporosis than their male counterpart. Early screening is a must to detect early decrease in BMD, particularly among the people susceptible to fragility/fracture. We advocate Vit-D intake to prevent BMD. We feel that it is an imperative to increase mass public awareness on this very issue of BMD.

Abstract

COMPARATIVE ASSESSMENT IN FOOD BEHAVIOR, NUTRITIONAL STATUS AND HYGIENE-SANITATION BETWEEN RURAL BANGALI AND TRIBAL SANTALI ADOLESCENTS OF PANCHAGARH

Author: ***Mosammat Shimu Akter, Ayesha Jamil Titli, Amanna Jahan Biva, Shezin Rahman Dihan**

BSc students, Food & Nutrition, Govt. College of Applied Human Science (**GCAHS**), Dhaka University

Background: Adolescents are high-risk groups in Bangladesh being neglected nutritionally who are transformed into alarming state of malnutrition and/or micronutrient/vitamin deficiency resulting in diet-related diseases, yielding lower BMI among 75% boys and 59% girls. Since none/few public health/nutritional research have been conducted in rural-Panchagarh, we compared adolescent's health/nutrition in two analogous communities of native-Bengali and tribal-Santali in rural Panchagarh, aiming to determine if perceived knowledge on dietary pattern is associated with the status of adolescents in respective communities.

Methods: This one-point survey was performed in 16 villages of Panchagarh, involving 292 adolescents (159 Bangali and 133 Santali) employing a hybrid-designed (open-closed ended) questionnaire and standard anthropometric-measurements. All verified/checked data were analyzed employing SPSS V. 22.0 using required statistical-methods.

Results: Mean age of respondent adolescents was 15.3±1.7 years. Overall 67% were had low-income (29% Bangali and 36% Santali) belonging to average mid-income-families. Though 34% Bangali and Santali both remained under-nourished, more Santali (9.8%) had overweight while more Bangali (1.3%) were obese, though dietary knowledge revealed insignificant difference (P<0.45). While 40% Bangali and 45% Santali knew about balanced-diet, more Bangali than Santali could mention source of food-energy, significantly (P<0.001), though both their knowledge on main protein source was less. Bangali adolescents were less unaware on food-components responsible for growth significantly than Santali (P<0.01). Hand-hygiene practice was also lower both in Bangali (31%) and Santali (28%), (p<.01), but surrounding environmental hygiene was significantly better in Bangali-villages as observed (P<0.01). Though overall nutritional knowledge remained slightly-better among Santali, practicing those in day-to-day life was not appropriate.

Conclusions: Since concepts/practice on diet/food-behavior/nutrition both among Santali and Bangali adolescents remain low alike awareness/practice on personal-hygiene. It is imperative that proper hands-on training/education in these fields be targeted immediately under stringent policy to establish a positive impact on community-health and improved-nutrition among these adolescents.

Abstract

FOOD BEHAVIOR AND NUTRITION OF CKD-PATIENTS ON MAINTENANCE HEMODIALYSIS: RECENT SYNOPSIS FROM ONGOING STUDY

Author: **Sanjida Islam Rupa, Nafisa Lubaba, Maisha Mahmud Natasha, Sadia Afrose**

Background and Objectives: Globally, Chronic Kidney Disease (CKD) pose serious public health issues leading to destined fatality that often creates enormous family/societal financial-burden, particularly in developing countries. This fact haunted us some of the BSc Research Team to unveil how much does socio-economic and nutritional factors remains associated with CKD-patients on maintenance- hemodialysis.

Methods: This hybrid-designed observational study was conducted among **87** CKD-patients from hemodialysis units of two urban hospitals, administering an interviewer-assisted face-to-face pre-tested

questionnaire, prospectively, and checking relevant clinical sheets/laboratory reports, retrospectively.

Results: Mean age of 87 patients, studied so far, was 50.9±12.7 years (ranging 41-50), 48 being males and 38 females, having mean BMI of 23.3 differing higher among elderly (p<.02) but had no gender difference (p<.19), ~84% belonging to mid-class (p<0.02) and not related to family history. Males were more from AWMCH while females from HFRCMCH (p<0.01). Of prevailing comorbidities: 47% patients had Diabetes, 24% UTI, 22% CVD and, 91% had hypertension (BP fluctuated in 81.6% during dialysis). Notably, of 70% patients who followed hospital prescribed diet, 64% reported to have benefitted while 30% didn't. When duration of dialysis was crossed with certain CKD-aggravating foods was significantly associated with Malta-fruit (p<.05), junk foods (p<0.01) and fast foods (p<0.01). Importantly biochemical-parameters were found higher, like: *Mg* (mean= 57.5±41.7), *Phosphate* (mean=9.9±18.6), *S. ferritin* (mean=1290.3±867.3), *urea* (mean=108±76.6), *albumin* (mean=18.2±16.9), *triglyceride* (mean=190±29.6). Finally, during dialysis some patients faced issues like itching, headache, body pain/muscle-cramp, etc. and 20% had fluctuating BP, 7% palpitations, and 4-5% each had respiratory problems, numbness, seizures, though >57% had no complain.

Conclusion: Cross-sectional findings of this study revealed middle-class people were more prone to CKD but not to malnourishment since their BMI was normal. We recommend further large-scale study to yield prudent recommendation towards better management & cure of CKD as effective public health interventions.

Abstract

PERCEIVED KNOWLEDGE AND ATTITUDINAL TREND OF JUNIOR PHYSICIANS ON CLINICO-EPIDEMIOLOGICAL AND MOLECULAR DIAGNOSIS OF CHILDHOOD NEURO-METABOLIC DISORDERS IN BANGLADESH

Author: **Nosheen Tasnim[1], Farjana Tabbassum Shejuty[2], Tasnim Khanam[3],**

Background and Objective: NMD are a group of inherited metabolic disorders mainly affect the brain, often underestimated being unaware &/or diagnostic errors though it affects world's ~6-8% population. No such data is available in Bangladesh. We conducted this baseline KAP-study to gauge perceived- knowledge and attitudinal-trend of junior physicians on childhood-NMD.

Methodology: This is a cross-sectional KAP-study is being conducting at the Ad-din medical college hospital since October'2002 administering a respondent- depended hybrid-designed questionnaire to assess the level of Knowledge of junior physicians on the basic issues of childhood NMDs as they can refer to neurologists for better treatment. It is important to educate junior physicians on NMD which are very less taught in MBBS course.

Results: Of 84 junior doctors (mean age 25.4 years), 62.6% knew NMD as inherited/genetic, 81% opined it as causally-associated with metabolism & brain-function(s). While 63% thinks parental-consanguinity increases NMD-risk, 45% knew its main presentation, whereas majority didn't know it specific presentation of different NMD-types. Around 63% optioned some screening-test to diagnose in BD; MRI of brain is essential (70%) but 12% out-listed those. 81% of thought molecular diagnosis as the best to identify childhood-NMD but most lacked knowledge on mol.-diagnosis. While 49% feel all be aware about NMD. Around 28% think mol.-diagnosis, 28% targeted gene-sequencing as the best, but 13% considered RT-PCR. Most doctors remain unaware of institutions that perform mol.-diagnosis, 38% agreed cost of mol.-diagnosis is expensive. Most doctors (>90%) proposed training on molecular diagnosis and development of rapid diagnostic kits for NMD and suggested a national surveillance program for childhood NMD in Bangladesh.

Conclusions: Our finding suggests further steps to be taken to assist our policy makers and public health planners towards a better strategic planning to raise perceived knowledge and up-bring attitudinal trend of junior physicians on childhood NMD in Bangladesh.

Abstract

EMERGING INFECTIOUS DISEASE: WHERE DOES BANGLADESH STAND? GLIMPSES ON MEDIA COVERAGE OVER THE LAST 6 MONTHS

Author: **Fathia Mansur Rachi[1], Dr. Tanzila Naureen[2], Farjana Tabassum Shejuty[3], Samina Israt[4], Tasnim Khanam[5]**

Background and Objectives: Emerging infectious diseases (EID) remain a public health threat since long. EID is associated with sociocultural-norms, poverty and

urbanization-which UNDP-HCH Report-2022 linked to exacerbate inequality/gaps in human-development. We, report here, three Infectious-diseases that swept-over Bangladesh in 2022.

Methods: This retrospective study on emerging-infections of dengue, cholera and hand-foot and mouth disease/HFMD affecting Bangladesh, was conducted by reviewing popular newspaper reports over the past 6 months, which were analyzed using descriptive statistics.

Results: Clinico-epidemiological features of Em-IDs: dengue (caused by *DEN-Virus*), Cholera (caused by *V. cholerae*) and HFMD (caused by either Coxsakie or *Enterovirus*) were excerpted from The Daily Star, Prothom-Alo, Kaler-Kontho, Daily Ittefaq& The Business Standard (June-Nov'2022).

Daily Star and Prothom-Alo covered 3 Em-IDs- cholera, Dengue and HFMD in whole-country, it covered **cholera** from Dakshin-khan, Mirpur, Md-pur, Jatrabari, Sabujbagh, Tongi, Gulshan, and Gazipur. For **cholera-outbreak**, 11,126 patients were admitted in icddr, b (Daily Star). However, Daily Ittefaq covered outbreak news on DEN in Bangladesh, but concentrated on Dhaka-city and 67 deaths are listed till 8th October, 2022, alike, The Business Standard which covered only HFMD mostly in Dhaka and Gazipur. While Cholera and Dengue were observed in all ages, children suffered from HFMD more but no death is observed in case of HFMD.

Expert opinion on 2022 outbreak of these three emerging infections, are:

- Breach in WASA-water cross-contaminated with sewage-line led to cholera
- Failing to coup with climate-change (temp~27-32^{O}C with intermittent-rain assisted in breeding *Aedes-aegypti*) yielding DEN, coupled with rapid-urbanization/ city-development.
- Childhood HFMD (by *Coxsakie* B-16 and *enterovirus* EV-7) may have spread out in this monsoon.

Conclusion: Recent large-outbreaks of infectious-diseases ring our warning-bell to address climate-change in without no time loss. All relevant government-organizations must take necessary actions to tackle adverse-effect of rapid-urbanization and seizing all types of environmental-pollutions from the country.

News and Views

ABSTRACT AND POSTER:

October 7-11, 2022, The 9th Congress of the EUROPEAN ACADEMY OF PAEDIATRIC SOCIETIES, Barcelona & Online; A Joint Scientific and Educational Event of EAP, ESPNIC and ESPR.
And, we were very contented to share that it was accepted for presentation at the ensuing European Academy of Pediatric Societies (EAPS), Barcelona, Spain.

ABSTRACT FOLLOWING:

PREVENTION AND CONTROL OF CHILDHOOD TUBERCULOSIS: RECENT FINDINGS ON PARENTAL PERCEIVED-KNOWLEDGE, ATTITUDINAL-TREND AND PRACTICE LEVEL FROM SOUTHWESTERN BANGLADESH USING A MIXED METHOD STUDY

K. Anwar[1] *, A. Kabir[2], N. Yasmin[3], M. Hassan[4], F. Anne[5], N. Keya[6], D.M. Khan[7], T. Biswas[8], Asad[9], M. Tanzil[10]

1. Head, Medical Research Unit, Ad-din Women's Medical College and Hospital (AWMCH), Dhaka
2. Head, Dept. of Pediatrics, Ad-din Women's Medical College and Hospital (AWMCH), Dhaka
3. Director General (hosp. & Nursing) and Head, Dept. of Community Medicine Ad-din Women's m Medical College and Hospital (AWMCH), Dhaka.
4. Vice Principal & Assoc. Prof. Dept. of Pediatrics, Ad-din Women's Medical College and Hospital (AWMCH), Dhaka
5. Research officer, icddr, b Health System & Population Science Division., Dhaka,
6. Research officer (R & D), Medical Research Unit, Ad-din Women's Medical College & Hospital (AWMCH), Dhaka
7. Asst. Prof. Pediatrics, Ad-din Women's Medical College & Hospital (AWMCH), Dhaka
8. Lecturer, Dept. of Community Medicine, ZH Sikder Women's Medical College, Dhaka
9. University of Dhaka, Isrt, Dhaka, Bangladesh
10. Research officer (R & P), Medical Research Unit, Ad-din Women's Medical College & Hospital (AWMCH), Dhaka

Background and Aim: Since community-based research on childhood tuberculosis (CTB) is scarcely conducted in Bangladesh, we conducted this KAP (knowledge, attitude and practice) door-to-door survey on CTB in 18 rural-villages of Khulna (relatively ignored and less-focused). 9th Congress of the European Academy of Pediatric Societies 2281 Poster Viewing Abstracts

Methods: Utilizing a hybrid-designed method we conducted this KAP-survey among 434 parents to assess their knowledge-score, attitudinal-trend and practice- level on the prevention/control of CTB, Quantitively, potentials of CTB control-dynamics were measured among domiciliary-health-care service (HCW) providers to strengthen DOTS qualitatively (KII-method: Priori-Code list/Matrix).

Results: Most respondents were young-females (90%) from lower/mid socio-economic status being more literate (34%) than men (26%). Poverty, distantly-located health-care-centers, poor-household-income remained causes of non-compliance in health-care-seeking- behavior. Mean knowledge-score was 2.94±0.8:~59% had low, 35% good and 10.5% adequate. Respondent's attitude: Likert-scale on CTB-prevention/control was positive in 77%.

To answer if CTB is curable:47% said sometime,30% always; 23% thinks CTB be prevented by 'avoiding CTB-patient-contact, 23% avoiding open-coughing or spitting-off/dispose sputum safely, while 45% had no idea. Our observation yielded kitchen (dry-smoky fuel) in>80% households attached to child's living/bed that may cause/aggravate CTB. Of all KII involving community-based HCWs, Pediatricians/Administrators, revealed CTB could be latent/underdiagnosed so actual CTB-prevalence may be more than actual-reporting. It became difficult to detect C/TB due to parental misunderstand on proper diagnosis and care.

Conclusions: Our findings will further assist the policy makers towards a better/ robust strategic planning of CTB-prevention &/or control. Our data will add prudent values in further strengthening of preventive strategies treatment planning and control measures against CTB

Childhood Tuberculosis: E-poster: published in Frontier Pediatrics

EP321 / #2714; E-Poster Viewing - Neonatology AS02-24.

Public health & social pediatrics